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New Orleans Medical

and

Surgical Journal

Vol. 84 AUGUST, 1931 No. 2

NEWER DEVELOPMENTS IN CANCER RESEARCH.*

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The inherent mystery and the prize of fame and riches associated with the cancer problem has made this field of medical endeavor a most attractive one, both for scientific investigators, literary speculators and popular fancy. As the result, the volume of scientific work, the mass of suggestions and trials submitted from all sources makes it exceedingly difficult to rise above confusion and to present a clear summary of what is really being attempted of worth and to evaluate what has actually been achieved to date.

Fortunately, despite the great diversity within the subject itself there are a few outstanding and definite problems under which all phases of cancer work may be considered. These outstanding problems relating to the field of cancer research are:

1—What is the nature of cancer?

2—What is its cause?

3—How is cancer to be diagnosed?

4—How is cancer to be treated?

5—How is the profession and public to be educated in regard to this disease?

*Annual Oration, read before the Louisiana State Medical Society, April 14, 1931, New Orleans.

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While dwelling briefly on all of these questions, we propose to stress the current conceptions in regard to the nature of cancer—since according to the concepts of its mode of origin, the control or cure of this disease must be planned.

NATURE OF CANCER.

No matter how reliable the compass nor how experienced the pilot, the captain of the ocean liner never rests assured of his course until a definite land mark is sighted and so in cancer investigation, no matter how scientific the work, and regardless of the progress made, there will never be unaminity of opinion and assurance of the nature or cause of cancer, until the entire problem is solved. Nevertheless, it is possible to outline a definite direction in the work already accomplished in solving the nature of the disease and to make definite statements for which a consensus of opinion and adequate evidence will not be lacking.

First, although specific infection, chronic irritation, injury and repair, biochemical forces, heredity and biological growth have been repeatedly presented by theorists as fundamental to the cause of cancer, the weight of scientific work today has centered more and more about the problems of biological growth as essential to an understanding of the disease. There still exist nevertheless laboratories of repute where the blood of cancer patients or the tumors themselves are being cultured bacteriologically for specific cancer organisms. There are also laboratories of the first order that are interested in producing tumors ex-

perimentally in chickens, by cell free filtrates (so-called Rous chicken sarcoma) in the hope that a filterable virus or allied agent will be isolated that will prove fundamental for cancer causation. But even if the very improbable and chimerical cancer germ could be found it would be only secondary in importance to the causation of the disease, because our knowledge of cancer has already passed the stage of drawing an analogy between it and simple infection. Moreover, the fact that cancer investigators may produce cancer at will experimentally, by painting the skin of mice with compounds of tar, directly opposes the viewpoint of these bacteriologically minded investigators. Certainly infection is not essential to the production of the disease, and infection alone will never account for true tumor formation.

The microscopic structure of cancer which tends to duplicate the design and function of the tissue in which it arises detracts from the importance of external agents in the production of the disease and emphasizes the fact that cancer in the human body is more or less an intrinsic problem and that tumor growth in general is largely dependent upon the normal biological characteristics of the tissues from which the tumor arises. The weight of scientific opinion therefore, places the responsibility for cancer fundamentally upon the individual and the portion of his body, where the tumor arises, rather than upon some outside agent. Not only is some constituent tissue of the body held responsible for the disease, but it is generally agreed that the disease begins locally and therefore it is some particular tissue at a particular age, and at a particular site that makes possible the beginnings of cancer. This is another way of saying that the age incidence and localization which in long years of clinical experience have been found peculiar to each separate form of clinical neoplastic entity have a definite significance.

The recognition of the local beginnings of cancer has been achieved with a high degree of accuracy for many types of tumors and is of considerable scientific and practical importance. It is forming the basis of an increasingly widespread campaign of education among the profession and the public in regard to these pre-cancerous, or early cancer spots which, when recognized and treated early, lead to the prevention or cure of the disease. Not only is the profession and public learning to suspect the origin of cancer from such birth marks on the skin as moles and angiomas; chronic lesions in the mouth such as white patch or leukoplakia; ulcerating or weeping scabs (keratoses) on the face or hands, polyps in the nose, colon, or rectum; ulcerating lesions of the cervix in women who have borne children; warts, or irritation of the female nipple; congenital cartilaginous outgrowths on the bones, etc., but in the light of recent research it is now understood why such birth marks and why such chronic sores constitute a likely focus. The scientific reasons may be formulated thus:

Cancer in the human body begins always in one of the three ways:

1. In an embryonic defect or local growth anomaly arising in fetal life or early childhood. (Moles, angiomas, exostoses, etc., are thus explained as foci for the disease.)

2. In a normal growth zone active after birth in a phase of normal development. (Giant cell tumor, chondrosarcoma of bone, chorio-epithelioma, etc., take their origin in such growth zones.)

3. In a normal growth zone activated through healing and repair. (Keratoses, warts, chronic ulcerations, etc., are examples of this.)

Such anatomical and physiological foci in the body offer a foothold for the beginnings of cancer because here cells in a normally undifferentiated state repose and retain an inherent power for differentiation and further growth. In other words, there is a common factor behind these foci. These are places in the human body where nature

leaves her building stones behind—either unintentionally as an anomaly, or intentionally for purposes of further growth or repair; and from these building stones the distorted and preverted structure of cancer is reared.

These fresh and unused building stones, without which cancer cannot arise are not left behind at random in the human make up, but are largely determined in location by the pattern of development of the particular organ, which in turn is predetermined by evolution and embryology. Fundamental studies into these normal patterns of development now underway and conducted over a period of three years in the Surgical Pathological Laboratory of the Johns Hopkins Hospital and University in conjunction with the Carnegie Institute for Embryology associated with the medical school have definitely proved the relationship between the localized pre-disposed cancer spot harboring the persistence of juvenile cell groups (with power for differentiation and continued growth) and cancer.

This fundamental basis for the cause of cancer has been demonstrated by evidence along four major lines.

1. The growth zones of the organ or embryonic defects coincide by age and site with the localization of the tumor growth.

2. Microscopic examination reveals the embryonic cell or unused building stone at both the normal site in the normal individual before any tumor arises, and the identical cell groups in an activated state at the same site after the tumor or cancer has arisen.

3. Moreover, the manner and sequence in which the cancerous components of the tumor develop repeat in an identical order and pattern, the normal developmental structure of the part and tissue involved. This is the most recent and significant finding and is made clearer by the illustrations shown below.

4. Finally, experimental evidence demonstrates that the normal growth zones or juvenile cell groups can be stimulated by various means and made to mimick the actual cancer formation.

These laws for cancer growth, and the demonstration of the role they play in the origin and development of tumor are best illustrated by considering their application to specific tumors.

The duplication in pattern and sequence by the tumor formation of the normal embryology and evolution of the part involved by cancer is most convincing. That a living growth which runs so counter to the welfare of the organism in which it begins should follow in the footsteps of the embryologic and evolutionary development normal to that organism is unlikely, unless these very evolutionary forces themselves were concerned in the new growth.

The connection between tumors of the giant cell group and the histogenesis of cartilaginous ossification at the normal growth zone of the epiphyseal line in bones, was established by an analysis presented in the Archives of Surgery, August, 1929, Vol. 19, pp. 169-271 "Osteitis Fibrosa and Giant Cell

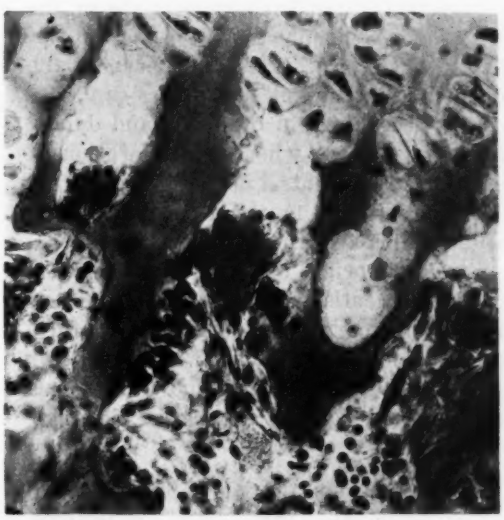

Fig. 1A: Comparison of the histogenic cycle in giant cell tumor with the normal proliferation of giant cells occurring at the epiphyseal line. Figure 1A is a photomicrograph of the epiphyseal line of a monkey foetus at term. Calcified cartilage is being perforated by large multinucleated elements carrying in their wake newly formed capillaries.

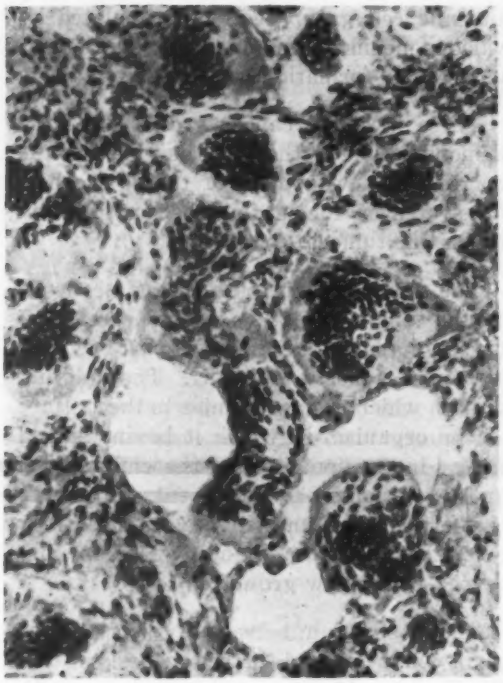

Fig. 1B: Photomicrograph showing numerous giant cells occurring in a benign giant cell tumor in an epiphysis. This proliferation of giant cells in the neoplasm duplicates that in the foetus.

Tumor" by Geschickter and Copeland. The fact that these lesions were proved to have their fundamental basis in a phase of the normal development of bone is the crux of this study. For, this analysis permits the conclusions that giant cell tumors can arise only at those sites in the body, and during those age periods when a proliferation of giant cells represents a normal transition in osteogenesis (Fig. 1). In other words, these lesions which are true neoplasms are dependent in their origin upon a normal phase of tissue differentiation. Only when such a transition is normally occurring in the form of the resorption of calcified cartilage near an epiphyseal line does the possibility present itself for the development of such new growths.

This conclusion in regard to giant cell tumor suggested that many neoplasms, whether benign or malignant, may involve, and have their origin in, a normal phase of development at the time when a growth impetus is manifested by an unstable phase of tissue differentiation, and other tumors of bone were studied from this viewpoint.

Osteogenic sarcoma of the chondromyxosarcoma type and benign osteochondromas occur at the transition point where tendons attaching directly to bone maintain a center of cartilaginous ossification to co-operate in the formation of a normal bony protuberance acting as an anchor for the tendon. The chondromyxosarcoma or osteochondroma arising here duplicates in its histology the normal transitions in tissue defferentiation found in the tendon end as shown in the accompanying illustrations, (Fig. 2). These primarily malignant growths forming at such sites have a specific age incidence and occur in the post-adolescent growth period.

Paget's cancer of the female nipple occurs at a transition point where the basal cell layer of the skin in the nipple forms a transition into the lining cells of the lactiferous ducts. The earliest stages in the new growth reproduce the histogenesis of the breast *anlage* observed in the human embryo (Fig. 3). The disease is most prevalent after the menopause suggesting a reformation of the line of junction at this point after the change of life.

Among the dental tumors the adamantine epithelioma occurs most frequently in the neighborhood of the molar teeth at an age period which corresponds roughly to the time of the second dentition (15 to 20 years). This neoplasm arises from the enamel organ and, under the microscope, the transition from basal cells to columnar epithelium indicate an origin in, or close relationship with, the normal histogenesis of the tooth crown (Fig. 4).

The fact that a fundamental basis in normal tissue differentiation has not yet been demonstrated in the majority of tumors does not detract from the soundness of this interpretation but rather reflects the rarity and difficulty of making a thorough analysis of the histogenesis of specific varieties of neoplasms.

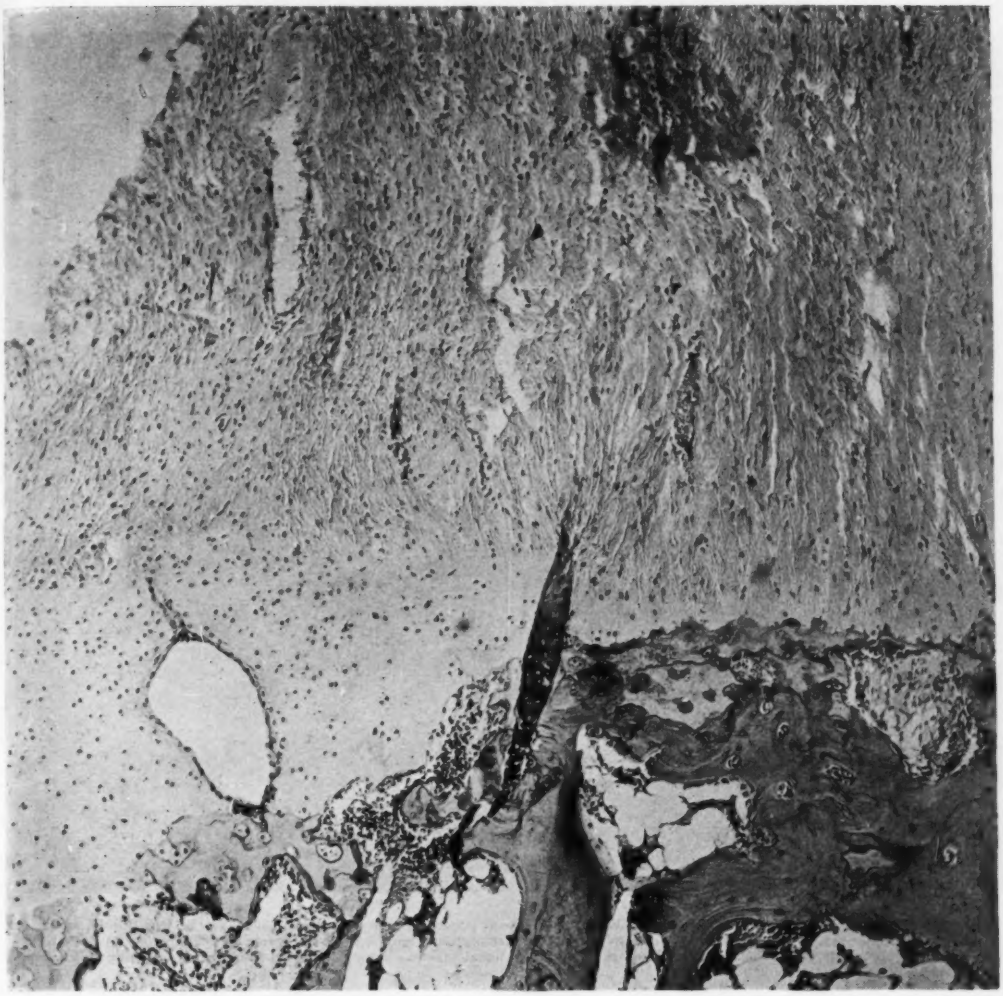

Fig. 2A: Comparison of the histogenic cycle in a benign osteochondroma with the growth center at the junction of the quadriceps tendon to the tibial tuberosity. Figure A is a photomicrograph showing cartilaginous ossification intervening between tendon and bone, in the quadriceps tendon. This is a normal growth center occurring in tendons that attach directly to bone and the transition from early connective tissue to cartilage to bone seen here is the basis for the osteochondroma shown in Figure 2B.

Such a demonstration of the laws of development for tumor becomes increasingly more evident and important as additional types of tumors are analyzed. There is a definite need for this form of analysis—where the clinical features of age, site and behavior are coordinated with the tumor pathology and the normal pre-existing anatomy of the part.

For, it must be conceded that the foundations of tumor growth are laid in normal anatomy and embryology—by cell groups or building blocks set aside either accidentally or purposely for replacement or further development of the tissues, and that the tumor growth involves the actual mechanisms of the developmental forces themselves. With this fundamental anatomical conception of the beginnings of cancer, it is important to learn if possible, what precipitates these more naive, unsophisticated and persistent juvenile portions of the human body into tumor formation.

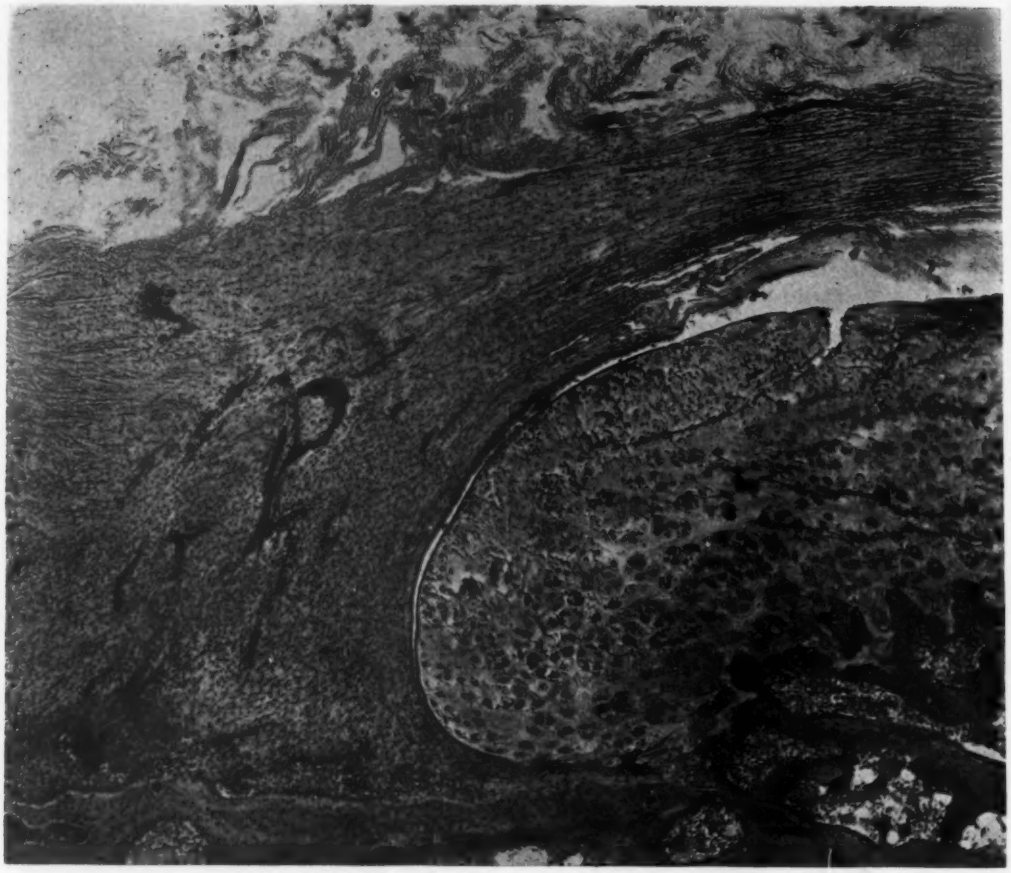

Fig. 2B: Photomicrograph of an osteochondroma or benign exostosis occurring at the point of tendinous insertion into bone. The connective tissue of the tendon overlies the cartilaginous portion of the growth giving rise to foetal cartilage which is being transformed to adult and calcifying chondral tissue. Beneath is a proliferation of cancellous bone. Compare with Figure 2A.

CAUSES OF CANCER.

First it is known, that the cause or precipitating factor is not one—and not to be elucidated by a single discovery—but that the factors to be demonstrated are as numerous and as variable as the influences to which these more primitive cell groups of the body may respond.

1. It is known that, among other things, unusual growth tendencies, some of which may be inherited, as the cartilaginous tumors in hereditary exostoses, may stimulate such primitive cell groups into tumor formation.

2. Again, endocrine distubances, such as hyperparathyroidism, through influence on the calcium and phosphorus metabolism in the bone, may give rise to multiple giant cell tumors in the skeleton.

3. And again, infection or injury directed at certain points, such as gonorrhea producing the spurs at the heel in the growth center of the tendon, or a blow starting an osteogenic sarcoma in the growing metaphysis of a young adult, may be instrumental in the production of neoplasia.

4. And the persistent demands for repair by chronic irritation and ulceration may be followed by cancer formation.

But regardless of the number and variety of contributary causes that may be cited in

Fig. 3A: Comparison of early Paget's cancer of the nipple with early development of the breast at the nipple site in the human embryo. Figure 3A shows the development of the breast in the embryo from the basal cell layer of the epidermis at the nipple site. The down-growing cords of cells are forming ducts which simulate the down-growth of cancer tissue shown in Figure 3B.

the many clinical forms of cancer, two important truths stand out as a result of careful pathological analysis and experimentation:

First, whether general or local influences are operative, the cancer producing effect only results when a specific locality capable of cell differentiation and further development is involved.

Second. Experiments demonstrate the converse of this statement in that a single etiologic agent operating alone will never produce a true tumor.

Thus the experimental injection of parathyroid extract will produce an area of giant

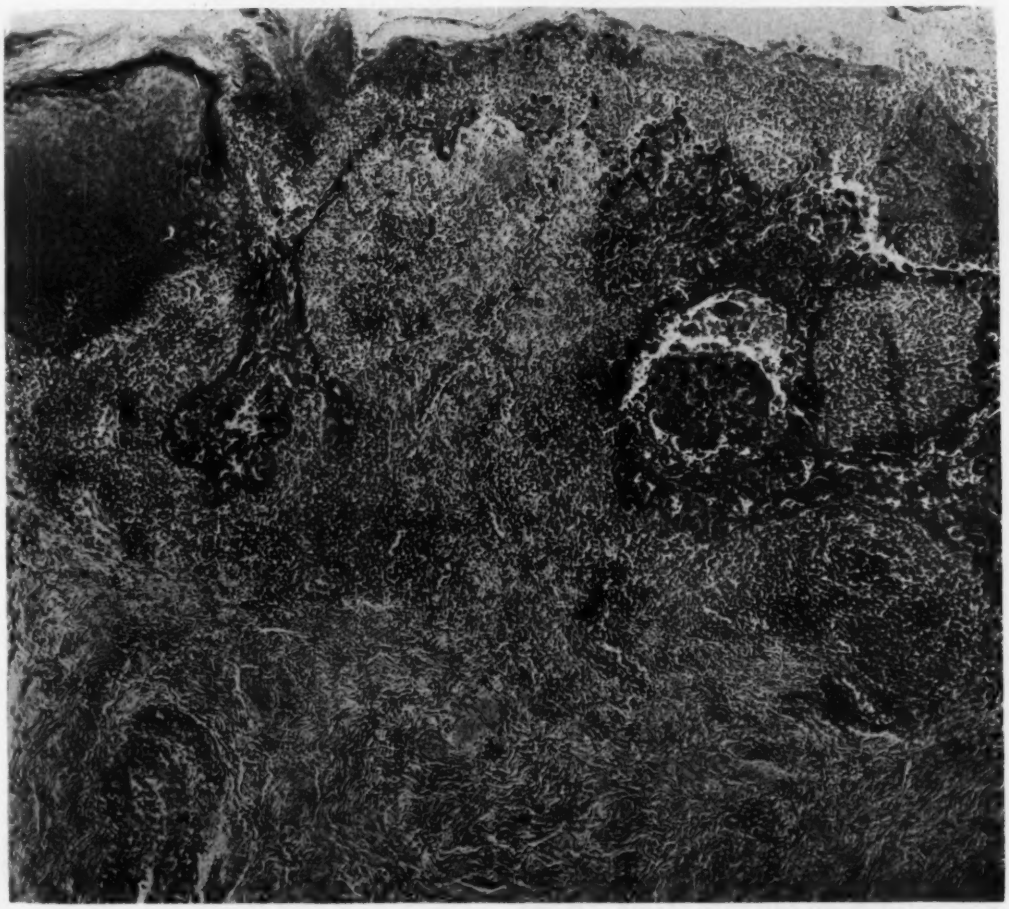

Fig. 3B: Photomicrograph of cancer cells proliferating from the basal cell layers of the skin and growing downward to produce ducts dilated with cancer tissue, in Paget's disease of the nipple.

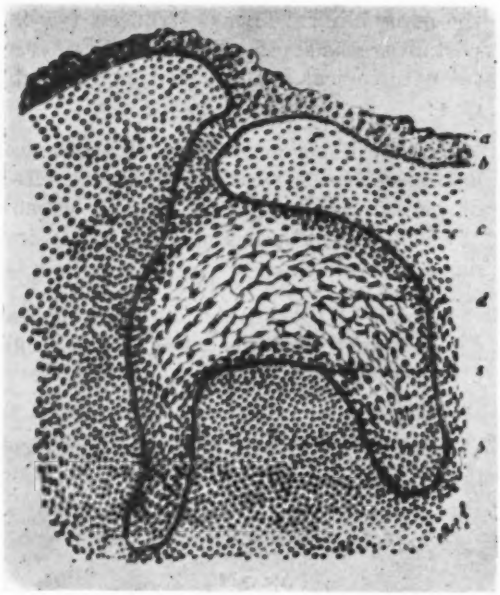

Fig. 4A: Comparison of the histogenic cycle of adamantine epithelioma with the embryology of the tooth crown. Figure 4A shows the formation of the tooth crown from the enamel organ in the embryo. Note how the transition of cell forms resembles that seen in Figure 4B.

cells in the bone, but will not produce a true giant cell tumor. Trauma to a bone at a growth zone will stimulate a certain degree of overgrowth but true cancer formation does not occur. Apparently the only exception is the production of cancer of the skin in mice after the application of coal tar. But here many repeated applications over a long period of time are necessary, which would seem to indicate that the irritation of the tar must await the development or occurrence of some secondary conditon before giving rise to cancer.

Although the entire picture is not complete, what has already been accomplished to date is sufficient to permit of important clinical applications, pointing the way for the control of the disease in its early or precancerous stages and indicating the lines for further investigative work.

The fundamental viewpoint embodied in the conception of cancer as a local tissue change concerned with cell growth here elaborated, is old and wide-spread. The reasons why an analysis of the evidence in favor of this conception and its application has not been conducted more energetically and along more thorough and broader lines is quite obvious. The bulk of cancer research either takes the form of isolated and abstract animal experimentation or is a gold rush, a short cut to a cure.

Too often the horizon of the experimenter is confined to his own particular laboratory without clinical contacts or constant touch with the clinical information in regard to cancer as it appears in human beings and rarely rises above the intricate manipulations of his chosen experimental method. Or he is a convert to the realms of research who has been newly imbued with the hope of discovering a cancer cure.

A co-ordination and bringing together of the disconnected efforts along the various lines of embryology, patholgy, endocrinology, and clinical investigation as well as the more abstract studies of biophysics and biochemistry are not only necessary to the cancer problem; but workers in these separate fields need the stimulation as well as the aid of such a variety of combined studies. Until we are ready to divert a definite portion of clinical effort in cancer to the

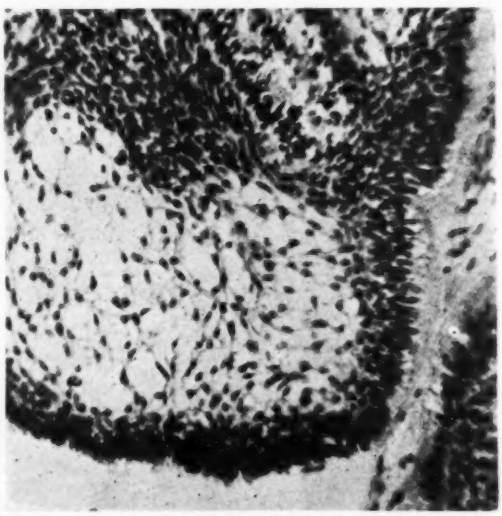

Fig. 4B: Photomicrograph showing the transition of basal cells to enamel epithelium of the columnar type, typical of adamantine epithelioma.

ends of research and until we learn to expect more of guided and coordinated effort in scientific research, the solution of the cancer problem is doomed to lie fallow in the middle ground between the diletant of pure science on the one hand, and the amateur cure-seeker on the other. We are expecting today too much of individual and chance discovery and not enough of concerted, well directed and organized effort.

DIAGNOSIS OF CANCER.

Methods in the diagnosis of cancer may be divided into systemic and local in scope. The systemic methods aim at discovering some change in the blood or body fluids or the excretions of cancer patients which will indicate the presence of cancer when the tumor is not discernible or when the character of the growth is in doubt. Local methods are aimed at an examination of tissue removed from the actual tumor itself and endeavor to demonstrate by measurements or reactions the presence of cancer or its absence in the tissue examined.

Systemic Methods of Diagnosis: The newer investigations in cancer diagnosis are largely in the systemic field. Many attempts have been made to devise a type of test which would show the presence of cancer in a patient when a small sample of blood is obtained for diagnosis. These tests have largely been modelled after the Wassermann of Kahn test for syphilis, but to date none have definitely proved of clinical value. More hopeful results have been obtained by tests which rely upon an examination of the urine of cancer patients. Ferguson‡ at the Memorial Hospital in New York has recently shown the presence of a pituitary substance in patients suffering with malignant tumors of the testicle which is excreted in the urine in detectable amounts. At present, however, the test only applies to certain types of tumors found in the genital tract. One laboratory is studying the excretion of sulphur which is supposedly higher in cancer patients. This latter test is not yet on a clinical basis.

Local Methods of Diagnosis: There are two chief methods of diagnosis applicable locally to cancer tissue. One of these is microscopic, the other metabolic. Microscopic methods rely either upon the finding of unique structural characters in the cancer tissue such as peculiarities in the cell nucleus, or upon unique staining reactions of the tissue when certain dyes are applied. The microscopic method surpasses all other modes of cancer diagnosis in accuracy and is the standard for comparison. Unfortunately it is not absolutely accurate and it has a large personal equation dependent upon the proficiency of the examiner. For this reason there is a definite demand for a differential stain which will make the presence of cancer certain by its color reaction.

New metabolic methods of diagnosis have been attempted on cancer tissues which endeavor to measure either the formation of lactic acid or the reducing power of the tumor. (The rate at which it will withdraw oxygen from a substance or the equivalent). Both lactic acid formation and the reducing power of cancer is higher than in most normal or diseased tissues, but not absolutely so in all cases. In addition the biochemical methods of measurement have a factor of error, because normal defensive cells are always crowded in around the tumor cells. For this reason the newer experiments attempting to measure the biochemical properties of cancer are endeavoring to use tissue cultures of pure tumor cells rather than cancer tissue.

Tissue culture of animal tumors is not new, the successful and continuous growing of human cancer cells is however, more recent. Among other things these newer studies have shown that there are different growth properties in cancer and sarcoma, that a peculiar variety of tri-partite mitotic division takes place in malignancy that re-

‡Preliminary note on a New Method of Differentiating the Testicular Tumors by Biological Means by Russell S. Ferguson, Helen R. Downs, Edward Ellis and Mary E. Nicholson; American Jour. of Cancer, 15:835, 1931.

sults in bi-nucleated tumor giant cells, and emphasize again the ad-mixture of normal reactive cells and phagocytes always present in actively growing tumors.

The study of properties peculiar to the malignant cell, and of the metabolic and serological findings in cancer patients promises to be one of the most fruitful fields of cancer investigation in the near future. The probabilities of the discovery of various tests which will increase the accuracy and ease of cancer diagnosis seem particularly likely in the not remote future. In addition it is not at all unlikely that the finding of specific properties in tumor tissue will provide fairly readily therapeutic applications.

TREATMENT OF CANCER.

The American Society for the Control of Cancer within the past few months, in a communication given to the daily press, stated that there exist today only three proved and effective methods of treating cancer: surgery, radium and roentgen-rays, and that to be effective these must be applied promptly and competently after an early diagnosis. These three standard methods of treatment, surgery, radium and roentgen-rays, have had no adjuncts added in recent years, with the exception of improvements of the deep roentgen-ray machine.

The science of electricity has recently discovered how to obtain and control voltages, exceeding 1,000,000, and this so-called artificial lighting is finding application to the field of deep roentgen-ray therapy in cancer cases. Three of such high voltage roentgen-ray tubes are in existence, one in Los Angeles, one in New York and the other in Washington, D. C. It is too early to predict the clinical results that will be obtained by these more powerful roentgen-ray devices, but apparently the present generation is about to witness the perfection and ultimate limitations of irradiation as applied to cancer, in the same manner that the last generation witnessed limitations of radical surgery as applied to cancer. In all probability, irradiation, like surgery, will leave the ideal treatment for all types of cancer early and late, still unattained. It is important to emphasize once again in discussing these accepted types of cancer treatment—as well as alluding to the more exaggerated and unfounded claims of extracts, serums, metals, and colloids as cures for cancer that the efficacy of any proposed cancer treatment must be judged by:

1. Its use in cases of cancer which have been microscopically proved.

2. Its use in cases which have passed the local stage of tumor growth and have recurred or spread to other parts of the body, and

3. Its capacity to produce permanent cures in patients with the above type of tumors who have remained well five years after the beginning of treatment.

THE EDUCATION OF THE PROFESSION AND THE PUBLIC IN REGARD TO CANCER.

It is now established that cancer can be cured if properly treated in its earlier stages while still localized, and largely prevented, if adequately dealt with in its precancerous state. Therefore, teaching the public to come early by stressing periodic health examinations and emphasizing the first warnings of malignant disease and teaching the profession higher standards of promptness and accuracy in cancer diagnosis is the accepted order for today, and tomorrow's medical ethics. Already New York, Massachusetts, Canada, New Orleans and many other states and cities have taken part. The movement will soon be national in scope.

ACUTE, AND CHRONIC OSTEO-MYELITIS.*

E. D. FENNER, M. D.,

NEW ORLEANS.

Is any apology necessary for presenting once more the well-worn subject of acute osteomyelitis, and its sequel, chronic osteomyelitis? The literature is teeming with admirable descriptions of the disease. The story of its terrible mortality, its symptoms, and its treatment are within reach of your fingers in any medical library. But, somehow or other, the lesson has not sunk in. The high mortality continues; in patients who survive the stormy invasion, the transformation of acute osteomyelitis into chronic osteomyelitis drags its slow length along through years, punctuated by repeated operations, and often terminates in crippledom; in spite of admonition, warnings, insistence, men—and pretty good men at that—continue to turn blind eyes to a clinical picture by no means difficult to recognize, and this at the onset of the disease when recognition, and clear eyed, bold action are so vital to the safety of the patient.

Acute osteomyelitis is a juxta-epiphyseal infection of the diaphysis of the long bones by the staphylococcus aureus. Occasionally we see an acute osteomytelitis due to streptococcal, or other infection, but these cases are rare. The bacteria are carried in the blood stream, and deposited in the diaphysis near its extremity. Their source is distant, a sore throat; an infected tooth; a skin infection, such as an impetigo, a furuncle, an infected abrasion. The blood infection is usually transient, and within a brief time blood cultures will be negative. If a bacteriaemia persists, you have a very bad case, and the patient is not apt to recover. Spreading of the infection within the bone to the epiphysis is not common, owing to the firm attachment of the periosteum at the epiphyseal line, and to the protective barrier of this layer of cartilage. Rapid extension of the infection of the diaphysis, on the other hand, is inevitable, and is in direct proportion to the delay in affording an exit to the pus locked up within the bony shell.

The deposit of the staphylococci in the bone is favored by trauma. A large percentage of cases give a history of slight injury shortly before the onset of the disease. Age is a real factor, since the great majority of cases are seen in the young. Probably 80 per cent are less then 16 years, and more than 50 per cent are below 10 years of age. Perhaps because of their rougher play, and consequent greater liability to injury, boys are more frequent victims than girls. Lowered vitality, previous illness, diabetes, are other causative factors sometimes mentioned, but it is certain that many cases have been normally robust.

The symptomatology is characteristic, and remarkably definite. Following an injury, not considered as having any significance at the time, a young child is seized with a violent pain in the neighborhood of one of his joints—the knee, the elbow, the hip, or the ankle. Fever develops rapidly, perhaps attended by a chill. The pain is very severe, and is at first pretty definitely restricted to a small area near the joint. Tenderness to pressure is likewise localized to a small region, near, but not in the articulation. Toxemia develops rapidly, and the patient is plainly very sick. Soon there develops swelling, but this too is near, but not in the joint. Attempts to move the limb give excruciating pain, but by extreme gentleness you can usually convince yourself that the articulation itself is not the seat of the pain. It is close by, but not actually in the joint. The leukocyte count rises rapidly to 20,000 or more. Hot applications increase instead of moderating the pain. The toxemia steadily grows more threatening and the patient may be delirious. For at least a week the roentgen-ray picture is negative. Meanwhile, the whole limb may have be-

*Read before the Orleans Parish Medical Society, March 9, 1931.

come swollen, and if the child does not succumb to the toxemia, he is, at least, in a parlous state. After a varying number of days pus breaks through the periosteum, accumulates in the soft tissues, and an abscess is unmistakable. During this crucial period the doctor has been marking time, but now at last he finds something to do. He timidly makes a small incision through the skin, and evacuates the pus. But the fever and toxemia are relieved for only a brief period, and the patient is again on the toboggan. A second roentgenogram is now taken, and bone changes are only too evident. At last, we have a case of osteomyelitis, and some sort of effort is made to relieve the pressure of pus within the bone. The patient perhaps survives, but extensive necrosis of the shaft proceeds, and he passes into the class of chronic osteomyelitics, undergoing one operation after another, and spending years of chronic invalidism.

Now why should this be the usual history of these cases? The clinical history is clearer even than that of an acute appendicitis. It has been described again and again with vivid emphasis. The combination of sudden, agonizing pain in the neighborhood of a joint, but not in the joint itself, in a young subject, following a trivial injury, with evidence of a distant focus of infection; the abrupt rise of temperature, with severe toxemia; the early onset of swelling near the joint, but not in the articulation itself; the localization of exquisite tenderness near the joint; the high leukocyte count; this almost unvarying group of signs and symptoms should point straight to the signboard marked acute osteomyelitis. But, do they? You all know how persistently the doctor will turn to rheumatism as an explanation. Sub-acute rheumatism of a single articulation is not uncommon in the young, but it is no violent and stormy affair like this. It causes no high fever, no desperate constitutional depression, no high leukocyte count; whatever swelling and pain are present are in the joint, not near it. Acute rheumatic fever is seldom monarticular, but involves a number of articulations. The swelling is in the joints themselves, the pain is there, too. Fever may be high, but toxemia is not suddenly severe. Acute infectious arthritis, for instance, the gonococcal, presents a similar picture of unmistakable joint trouble. We may dismiss such diagnoses as typhoid fever, blood poisoning, and the like, since they have no meaning in connection with such a history as is given by these patients. They are mere camouflage to stall off a gullable family.

The outstanding and disheartening feature in the history of acute osteomyelitis is delayed diagnosis, and delayed treatment of the right sort. The average doctor is not likely to encounter many such cases in his practice, and the picture of this virulent bone infection is apt to be obscured by his more ordinary experiences. Muscular spasm which fixes a joint in flexion, and is accompanied by severe pain and fever, suggests joint trouble to him. Within the joint and near the joint are not far apart. Experience has taught him that frequently joint troubles will get better if they are given salicylates and rest. Meanwhile, his attention is so fixed upon the joint that he pays too little attention to the general condition of his patient. A negative roentgenogram confirms his hesitation. The violent constitutional disturbance, the intense local signs and symptoms, vivid red signals of danger, are disregarded until the accumulation of pus beneath the skin suggests another roentgenogram, and bone destruction is apparent.

Now what is the lesson to be learned in regard to this formidable bone infection? In the face of the clinical picture already described—sudden, violent pain and tenderness near a joint, with high fever, severe toxemia, localized swelling, and leukocytosis, in spite of a negative roentgen-ray report, lose no time on fomentations or watchful waiting. Cut down upon the bone over the tender spot, incise the periosteum,

and drill a hole in the bone. Depending entirely upon how many days it has taken you to screw your courage to the drilling point, pus may be encountered beneath the skin, beneath the pericsteum, or only after you have drilled the bone. After you have taken up your knife and incised the skin do not rest satisfied until you have made an opening in the bone as well. When pus wells up from the drill hole, enlarge the opening until you are certain that drainage is adequate. See that the incision through the soft parts is large enough to expose the bone readily. Dry the wound, and flood it with tincture of iodine, followed by alcohol, and loosely pack the wound wide open with strips of sterilized vaseline gauze. Introduce no sutures, but pack the wound wide open. Apply a heavy gauze dressing, and encase the limb in a plaster of Paris splint to secure absolute immobilization. From now on, do not worry about the wound, but watch the patient. If the toxemia abates, and the fever subsides, as they are apt to do, the wound need not be disturbed for days or even weeks. The only indications for interference with the plaster of Paris case, and the gauze pack, are persistence of fever and toxemia, and a stink arising from the limb too great to be endured. If fever and toxemia persist, it is fair to assume that drainage is still inadequate, and that a wider opening of the bone is needed, and this should not be delayed too long. In the absence of such symptoms, the longer the wound can be let alone the better. When you conclude that a second dressing is advisable, although the patient is comfortable, free of fever, and of toxemia, you will find the affected region soaked with stinking pus, but filled with healthy granulations. Cleanse the skin with alcohol, flood the wound cavity with tincture iodine, followed by alcohol, and repack with the vaseline gauze. Put on a new immobilizing plaster of Paris case. Let this alone as long as you can stand the smell.

This is the Winnett Orr method of treating osteomyelitis. In acute cases the bone is opened widely enough to ensure free drainage. If this has been done early, the process may be arrested; where there has been considerable delay relief of tension may have come too late to prevent extensive necrosis of the shaft. The latter fall into the chronic stage, and a secondary sequestrotomy will be needed. At this time expose the bone freely, remove the whole roof of the diseased area, together with any sequestra, saucerize the bone cavity, and pack as before.

Many years of disappointment with older methods, and the results obtained within the last few years with Winnett Orr's method, have completely converted me to his following. The saving in dressing material, in the surgeon's time, and in suffering to the patient, which results from these infrequent dressings, are not to be lightly dismissed. What matters a bad smell in view of the extraordinary progress of the case towards cure? Winnett Orr himself has suggested that some sort of defensive mechanism was set up by his combination of wide open drainage, subsequent non-interference, and perfect immobilization. Albee has expressed the opinion that the conditions created resulted in the development of a bacteriophage.

Wilhelms has taught us that suppurating joints, opened widely to ensure drainage, with drainage tubes or gauze packs absolutely forbidden, and frequently mobilized to pump out the pus, could be restored to perfect function and freedom of motion. Winnett Orr, recognizing the differences of structure in the parts concerned, has shown us that infected bone could be induced to heal by adequate drainage, infrequent dressings, and perfect immobilization. To both these men the profession owes a debt of gratitude.

DISCUSSION.

Dr. Urban Maes (New Orleans): Dr. Fenner has left me little to discuss for the reason that he has already considered in detail the most important fact about osteomyelitis, the necessity of its early diagnosis. If that fact were borne steadfastly in

mind, there would be no necessity for discussing the treatment of Winnett Orr or the treatment of Baer, but since it is very generally ignored, the management of late cases always forms a large part of every symposium on the subject.

A few years ago I looked over the records of Touro Infirmary, and I found, in analyzing the cases of osteomyelitis, that the diagnosis had been missed in practically every instance until bone destruction and constitutional symptoms were evident, Fifty per cent of the cases were diagnosed as toxemia, and the other diagnoses included articular rheumatism, typhoid fever and tuberculosis. In almost every case the diagnosis was missed because the first roentgen-ray studies were negative, and Dr. Fenner has very properly emphasized the fact that mistakes are going to occur just as long as the roentgen-ray is relied on for diagnosis, because, in the early stages of the disease, bone destruction has not occurred and the roentgen-ray is always negative.

Some years ago I made the point before this Society, in a similar discussion, that it would really be a conservative policy to explore every case in which we suspect osteomyelitis, for the reason that an exploration does no harm while delay in treatment always results in prolonged disability, if nothing worse. An elaborate armamentarium is not essential; a scalpel and a ten cent carpenter's gimlet is all that is necessary. Nor is the procedure difficult; it amount to nothing more than the boring of a few holes in the proper place in the diaphysis, with the proper precautions, of course, to protect the epiphysis.

At the same time I called attention to the facts which Dr. Rives has alluded to in a previous discussion. At that special time we had four patients in our ward whose aggregate disability, from failure to diagnose the disease promptly, was over one hundred years. I note in a recent issue of Surgery, Gynecology and Obstertics that Brunschwig reports three patients with an aggregate disability of over fifty years. Two of these cases required amputation, and in three other cases he reports, in which he attempted conservative treatment the patients disappeared from his observation still with suppurative infections.

Certain points about osteomyelitis must constantly be borne in mind:

1. That the disease is a clear cut entity, with definite symptoms which follow in regular sequence and which are recognizable within a few hours after the onset.

2. That failure to recognize the disease in the early stages invariably results in pathology of the chronic type, with long periods of disability in some cases, and with a fatal outcome in others.

3. That the local manifestations of the disease are extremely important in diagnosis, for the reason that the constitutional symptoms mimic the symptoms of other diseases.

4. That dependence on the roentgen-ray for the diagnosis of acute osteomyelitis is a grave error, for the reason that the roentgen-ray findings are always negative in the period when treatment is of most avail.

I have had practically no experience with the methods of treatment advocated by Winnett Orr and by Baer, but it strikes me as most unfortunate, in the face of all that is known about osteomyelitis, that it should ever be allowed to progress to the stage in which such repugnant methods are necessary. Orr lets his cases progress to the point of putrefaction, and perhaps, if you can endure to live around the patients, that is a satisfactory mode of treatment. Baer goes even further, in that he has maggots, and trained maggots, at that, put into the wound to eat out the necrotic tissue, a procedure, again, that may be curative but is certainly unsurgical. Neither method, however, as I have already said, would ever have to be invoked if the points that Dr. Fenner has made were borne constantly in mind.

Dr. E. S. Hatch (New Orleans): I would like to emphasize what Dr. Fenner has said about the importance of early diagnosis and say just a few words about Dr. Orr's treatment.

In the older methods of treating osteomyelitis the doctor and the patient both had a hard siege, the doctor hating to hurt his patient and the patient dreading the visit of the doctor.

By using Orr's method, the bone cavity is cleaned out, packed with sterile vaseline gauze strips; dressing applied and a plaster cast put on.

It is my habit to let these casts alone for from four weeks to six weeks, as patients do not have any pain, discomfort or temperature, but they do have a very bad odor from the accumulating drainage. When the cast and dressings are removed after several weeks the wound presents a healthy granulating surface.

Dr. E. Denegre Martin (New Orleans): I have not very much to add, except to emphasize what Dr. Fenner has said about early diagnosis. Some years ago when I had the Colored Clinic, I had many to come in as chronic cases.

In my own practice I have seen three cases first diagnosed as typhoid fever and treated as such

for six weeks. Results in these cases: resection of left hip joint, resection of right ankle joint, and involvement of every bone in the body. I was just thinking that had we used Orr's treatment on these cases we would have been unable to get in the house at all on account of the odor.

In operating on these cases we must get rid of the infection at the time of operation. There would be little danger if you curetted these cases thoroughly, but they will have high temperature if you pack them. Carbolic acid solution strong enough to destroy bacteria will destroy tissue. I believe, if you get rid of the infection in the beginning, any treatment will do.

One thing to be avoided in all treatments is redressing cases two often. Every time you dress these cases you are very apt to delay healing and I have made it a rule never to cleanse a wound unless necessary.

We must differentiate from other diseases. There is always pain around the joint. I have seen cases where pain was only in the shaft. A few years ago I was called in to see a case of pneumonia. I discovered that the child had osteomyelitis. The problem was to wait until the child was well of the pneumonia when it might be too late. So I drilled two holes about ¼ inch and allowed the pus to escape and warded off the danger until the child was cured of the pneumonia when I finally drained and curetted the cavity.

Dr. A. C. King (New Orleans): I do not think this subject ought to go without further discussion.

Dr. Fenner, in describing a while ago why these cases became chronic asked the pertinent question of "why" this occurs. There seems to me to be two reasons: One is the patient and the other is the doctor. Oftentimes, the patient will diagnose his condition as rheumatism and the disease will go on for several days, progressively getting worse before the physician is called in. When the doctor does arrive, he concurs in the diagnosis of rheumatism or typhoid fever, and the disease gets worse until much damage has been done.

Dr. Maes has made the statement that it is a plain open thing and easy to diagnose. To the man who has had considerable experience I will agree that it is. Appendicitis was an open and easy thing for John B. Murphy, but not to the general practitioner, with the result that many cases went on to death unrecognized. In osteomyelitis, the profession as a whole is up against the same problem. If we were called to see as many cases of osteomyelitis as appendicitis then we could easily make an early diagnosis, which means early operation with early recovery. These three things go together: early recognition, early operation, early recovery. Late recognition means tremendous disability and in many cases loss of life.

Dr. Elizabeth Bass (New Orleans): There is one very important step in the differential diagnosis of acute osteomyelitis from other infections of the bone that has not been mentioned, namely, the examination of the urine. It has been my observation in a number of cases of osteomyelitis that the urine shows albumen and a variety of casts especially coarse granular and frequently amyloid, whereas, in tuberculosis, rheumatism and other joint and bone disturbances the urine is usually normal.

Dr. Frank L. Loria (New Orleans): Having been a student under Dr. Fenner I feel greatly indebted to him for much of my knowledge of osteomyelitis. Two phases of this subject, however, which have not yet been covered struck me as being important enough to mention.

The first is that phase in the disease frequently spoken of as metastatic osteomyelitis— or a second distantly involved bone. Whether or not the original nidus of infection has anything to do with these cases, I think, is still detalable. Nevertheless, in two such cases, observed by myself, the symptoms resulting from the second focus were considerably more mild than those resulting from the original focus, and the diagnosis was much delayed in each case. One of these cases had an original focus in the left tibia five years previously and recently I operated upon him draining pus from his right humerus. The symptoms resulting from infection in the humerus were so mild that two other men agreed the condition, even with roentgen-ray plates, was probably syphilitic. The other case was in a child about 12 years of age with a pretty severe acute original focus in the left clavicle and a later low grade infection of his right tibia, so mild that the diagnosis of bone tumor was ventured by one man. However, operation proved the presence of a low grade (Brody's) abscess.

The second phase of great importance to me, and which should probably rank as phase number one, concerns early diagnosis and osteotomy in all cases that can not definitely be proven not to be osteomyelitis. We know that properly performed osteotomy—whether the case at hand be or not be osteomyelitis—is free from deleterious results. For this reason, I do not hesitate to perform an osteotomy on every case in which I am not sure the condition is not osteomyelitis. Two very recent

experiences have impressed this idea even more forcefully on my mind.

Recently I was called in to treat a young man about 20 years of age complaining of severe pain below his right elbow and over the head of the right radius. There was a history of fracture in this region about 12 months previously. The temperature was around 103° and the onset very abrupt. The blood count showed more than 20,000 whites (made by Dr. F. M. Johns) and I was convinced I was dealing with a case of acute osteomyelitis. Accordingly, I performed an osteotomy, but the next day his fever had not subsided. On the following day a left middle ear abscess ruptured and the fever subsided. No soft tissue abscess formed at the site of the osteotomy and healing was by first intention.

Another case was that of a boy five years of age who developed pain in the right leg. His mother said he had no chills nor convulsions and that his fever was never above 102°. The blood count was 11,000 and although pressure elicited some pain over the lower regions of the right tibia this was not very marked. However, I decided to perform an osteotomy and to my surprise the culture from the bone marrow showed staphylococcus aureus and a soft tissue abscess formed as usually happens in these cases.

To reiterate I would suggests first that the matter of later distant foci of infection be kept in mind as also the relative little damage that might occur following a properly performed osteotomy.

Dr. E. D. Fenner (closing): How many thousands of articles were needed to bring the profession and the public to the point where they now are in regard to acute appendicitis? And how many thousands of articles are going to be needed accomplish the same thing in regard to acute osteomyelitis? The records of any hospital—here, in New York, in Philadelphia—will show that operation for acute osteomyelitis is usually delayed for days, often for weeks. It is going to take a great many articles to arouse the profession and the public to recognize what is, in fact, as clear a clinical picture as is shown by any disease we see.

Now when it comes to the question of what you should do, my own opinion is that any surgeon who has gotten up the courage to operate upon a case which presents this typical picture, had better not stop at the periosteum, but should go into the bone. Pus that can run out freely does not do much harm; when it is confined, you get toxemia.

I remember passing through the operating room one day while my friend, Dr. Landry, was operating upon a case of chronic osteomyelitis, to which he called my attention. He had saucerized the bone area, put in an iodoform gauze pack, and introduced five or six good big sutures. I said to him, "Landry, if you will take out all your sutures, replace your iodoform gauze with sterile vaseline gauze strips, and pack the wound wide open, you will get a real surprise, particularly if you will put on a plaster of Paris case, and then let it absolutely alone for several weeks." He came to me in about six weeks, and said, "Fenner, I would never have believed I could get such a result as I have."

Saucerize the bone through an incision in the soft parts which extends beyond the affected bone area; cleanse the cavity with tincture iodine, followed by alcohol; loosely pack the cavity with sterile vaseline gauze; put on a plaster case, and make no change of dressing for several weeks, provided there is no fever; and when you do remove the plaster case, you will find a stinking, pus soaked dressing, but the cavity will be filled up with good, healthy granulations. Renew your vaseline pack, your gauze dressing, and your plaster case, and forget about them for another month. You are going to have cases of osteomyelitis cured in three or four months, instead of lingering on for fifty years as Dr. Maes has remarked.

One of the things that induced me to write this paper is the fact that our hospital records show that only once in a blue moon is a case of acute osteomyelitis operated on within forty-eight hours; most of them wait for days. The pus, confined under tension within the bone, produces extensive necrosis. You would not have it if the pus could have found an exit.

I sincerely hope that someone will come back here next year, and the year after that, and repeat the lesson I have tried to bring home to you.

THE TREATMENT OF INFECTIONS OF THE MASTOIDS OF INFANTS, WHEN THERE IS NO SIGN OF DESTRUCTION PRESENT, WITH FRACTIONAL DOSES OF THE ROENTGEN RAYS.*

AMEDEE GRANGER, M. D.,†

NEW ORLEANS.

The favorable influence which fractional doses of the roentgen rays, even the small amount of these rays administered while making a radiograph, have on mastoiditis complicating middle ear disease, was observed more than two years ago while I was engaged in an intensive radiographic study of the healthy and diseased mastoids of infants.

Last December in Toronto when I presented the result of that study to the Radiographical Society of North America I made the following statement: "In a number of cases too large to be attributed to mere hazard or coincidence, patients with definite signs of infection and occlusion but not of softening and destruction of the mastoids were decidedly improved by the irradiation incidental to the making of the radiographs and went on to resolution and cure. This observation was confirmed by several competent oto-laryngologists and was especially noticeable in some patients who, prior to the radiographic examination, had run a slow low grade course over a period of several days without improvement. As a logical result of this observation, when the clinical manifestations are slight and the radiographs show no sign of destruction my colleagues of the oto-laryngological specialty in both hospital and private practice institute a period of from two to five days of watchful waiting and then if the condition shows no sign of clearing up or if the clinical examination indicates that it has become worse, other radiographs are made and these invariably show signs of softening or destruction."

At this juncture I will describe the positive sign of destruction of the mastoid which I discovered while making that study, and I hope that it will prove as valuable to you as it has to me in the diagnosis of these troublesome cases.

The shadow of the sinus-plate (groove for the lateral sinus, anterior wall of the lateral sinus) normally seen in the radiographs of mastoids of adults and children over three years of age, made in the Law position, is sinus) normally seen in the radiographs of healthy mastoids of children under three years because the mastoid has not begun to pneumatize and to assume the adult type and for that reason the very thin sinus plate of the infant can not be visualized on account of the compact, spongy bone structure of the mastoid which lies over it.

But when that bone structure is destroyed—not merely inflamed or softened—the sinus plate becomes visible on the radiographs of infants as young as three months, the youngest patient examined by me, and at operation a true mastoid abscess is found. By this I mean that after the cortex of the mastoid is removed a cavity filled with pus and debris is found which when cleansed out in most cases by merely wiping with gauze, reveals the sinus plate exposed to view. In a very small number of radiographs of patients under three years the sinus plate was visible when there was no destruction of the mastoid but in every instance a degree of pneumatization existed which was unusual, I may even say abnormal for that period of life, or the location of the sinus plate was abnormally superficial. These findings were confirmed by the operator in the very small number of these anomalous cases which went to operation.

Since the beginning of this year through the co-operation of the House Staff of the Charity Hospital more than 30 infants with

*Read before the Orleans Parish Medical Society, November 24, 1930.

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mastoiditis were treated with fractional doses of the roentgen rays with very gratifying results—again let me say that no cases showing the sign of destruction of the mastoid were treated, but only those with occlusion of the mastoid antrum with or without infection of the mastoid structure.

The technic consisted in making radiographs of both mastoids two or three times a week until clinically and radiographically the condition cleared up or the signs of destruction became evident. The little patients received two or three fractional doses of the roentgen ray a week and at the same time we obtained the same number of radiographic records of the progress of the mastoid pathology. The smallest number of treatments given before the discharge from the ear ceased in the cases that got well was one and the largest was seven.

In quite a number of cases with bilateral mastoiditis the beneficial effects of the roentgen rays were shown most convincingly when the discharge from one ear would stop after one to three irradiations, and it required two or three more irradiations before the discharge from the other ear ceased, although the same local treatment had been applied to both ears from the beginning.

A very constant and reliable indication that the diseased mastoid is responding favorably to these fractional doses of the roentgen rays is for a slight general reaction—rise of ½ to 1 degree in temperature—and local reaction, diminished pain and more profuse discharge, to take place in from 6 to 24 hours after the irradiation, followed the next 24 hours by a diminution in the quantity or a change in the quality—thinner and less purulent—of the discharge or both.

ILLUSTRATIVE CASES.

Case 1. L. M. F., baby girl, 10 months of age.

June 4, 1930: There was a rise in temp. to 104°.

June 6, 1930: Lung examination negative.

June 9, 1930: Examination of ear revealed red bulging drums. Tympanotomy done and pus discharged from both canals. Temp. 103.5°.

June 10, 1930: Ears still discharging pus. Temp. 103°.

June 10, 1930: Roentgen examination shows occlusion of both mastoids.

June 12, 1930: Ears still discharging pus. Temp. 101°.

June 16, 1930: Ears still discharging slight amount of pus. Temp. 99.6°.

June 16, 1930: Roentgen examination shows both mastoids clearing up satisfactorily.

June 20, 1930: Irrigation of both ears returned clear. Temp. 99.6°.

June 23, 1930: Discharge from ear drying up but typanum repunctured because of temperature. At this repuncture no discharge was obtained.

June 23, 1930: Roentgen examination shows still further clearing up of the mastoids.

Case 2. V. M., baby girl, 3 years old.

August 30, 1930: Cold, pain in mastoid region, more severe on the left. Temp. 104°. Examination of ears revealed bulging drums. Tympanotomy done, pus obtained from both ears.

August 30, 1930: Roentgen examination shows occlusion of both mastoid antrii, with no evidence softening or destruction at this time.

August 31, 1930: Ears still discharging pus. Temp. 103°.

September 2, 1930: Ears still discharging; more on left. Temp. 103°.

September 4, 1930: Ears still discharging; more on left; the amount is decreasing. Temp. 100°.

September 5, 1930: Roentgen examination shows right mastoid clearing up; left mastoid shows evidence of more pus with inflammatory reaction.

September 8, 1930: Right ear irrigation clear; left ear still a discharge of thin watery pus. Temp. normal.

September 9, 1930: Roentgen examination shows right mastoid cleared up; left mastoid shows evidence of pus and inflammatory reaction.

September 12, 1930: Right ear discharge dried up; left ear still a small amount of discharge. Temp. normal.

September 12, 1930: Roentgen examination shows right mastoid cleared up; left mastoid clearing up.

Case 3. A. M. H., baby girl 2 years old, admitted to Charity Hospital, September 25, 1930, with perforation of the right drum membrane, a profuse purulent discharge from the ear for the past week.

September 27, 1930: T. 100.2°, E. N. T. consultation, discharge profuse.

September 29, 1930: T. 100.4°. On this date the child had its first roentgen examination, the left mastoid was clear, the right side showed marked occlusion but no signs of breaking down. Discharge from the ear was profuse and solution returned cloudy with large particles of pus.

September 30, 1930: Routine therapy continued. T. 100°. Discharge nil; solution returned cloudy with large number of pus particles, adenopathy decreasing in size.

October 1, 1930: Routine therapy continued. T. 99.4°. The solution returned cloudy with numerous particles of pus.

October 2, 1930: Patient received the second dose of ray, no change in the condition of the mastoid as shown on radiograph. Solution returned cloudy with few particles of pus. T. 96.6°.

October 4, 1930: Patient received the third dose of ray. Solution returned clear with few particles of pus.

October 6, 1930: Plates of this date showed no change in the pathology previously reported. T. 102°. At this time the patient developed an acute respiratory infection, slight cough, with sonorous and sibilant rales throughout the chest. Solution returned clear with numerous particles of pus.

October 7, 1930: On this date for the first time there is radiologic evidence of the right mastoid clearing up. T. 101°. Irrigations clear and there is still moderate amount of pus returning.

October 9, 1930: T. 99.6°. On this date the mastoids were reported as clearing up satisfactorily. Small amount of drainage, few particles of pus returning.

October 10, 1930: No discharge; solution returned with a few strands of pus. T. 98.8°.

October 13, 1930: Solution clear and no discharge. T. 98.8°.

October 14, 1930: This was the last picture that was taken and the report stated a complete clearing up of the right mastoid. No discharge and solution clear.

October 15, 1930: No discharge and solution returned perfectly clear. T. 98.2°.

October 16, 1930: No drainage and solution returned clear. T. 98.8°.

As there has been no discharge for the past eight days and solution has returned clear for the past four days, the patient was discharged and referred to the E.N.T. Clinic for further observation.

Case 4. E. G., baby girl, 6 years old.

Both ears discharging for over three weeks following measles.

Radiographic examination on March 28 showed occlusion of both mastoids but no sign of softening or destruction. That evening the temperature was nearly a degree higher and the discharge more profuse. The next day the discharge became more watery and began to diminish. Within the week the discharge from the right ear ceased, and that from the left ear continued to lessen but there was still two or three drops of watery discharge during the day on May 9 when another radiographic examination was made. This showed the right mastoid clear, and the left mastoid cloudy, but without signs of softening or destruction.

That night (May 9) the discharge from the affected ear (left) increased slightly and the following day it began to diminish and had ceased entirely on the fifth day after the second raying.

THE SCHILLING INDEX.*

H. T. NICOLLE, M. D.,

BATON ROUGE, LA.

The Schilling index or count is based on the development of the white blood cells. In order to better understand its value and limitations we have to consider first the development of the cells and their origin.

Piney asks a very pertinent question when he says, "Is there somewhere in the body a type of cell capable of giving rise to all forms of blood cells? Or has each type of formed element of the blood an ancestor whose developmental possibilities are strictly limited by its own constitution?"

It is this that has divided the hemetologists into two main schools, viz: those who believe that all blood cells are derived from a single type of precursor, the monophyletists, and those who believe that there are two main types of manufacturing cells, the myeloblasts and the lymphoblasts for the granular and the non-granular cells. The monophyletic view is that all cells are derived from the reticulo-endothelial system and that, at any time during life, it can produce haemocytoblasts with the power of developing into any type of blood cells. "The only polyvalent haematopoietic cell is the reticulo-endothelial one."

The monocyte or large mononuclear or endothelial leukocyte is hard to classify. It apparently springs from the reticulo-endothelial system according to some authorities. According to others it develops from the lymphocytes. Piney considers them to be derived from the myeloblasts. Maximow believes that the monocytes are derived from the lymphocytes during inflammatory processes, where they are transformed from lymphocytes to cells which cannot be distinguished from monocytes and finally to polyblasts. "The facts, therefore, give a strong support to the idea that the monocytes are simply lymphocytes, which under the influence of stimuli of unknown nature and in adaptation to a specific function of probably defensive character, have progressively developed in a particular direction. The monocyte, accordingly, may be looked upon as the polyblasts of the normal blood." This may occur in any part of the body but mainly in the stagnating blood which fills the large venous capillaries of the spleen, liver, bone-marrow and other organs.

Schilling adds a third system for the monocytes to explain the otherwise incomprehensible independence of the monocytic system in the clinical picture. He believes that the monocytes are the only cells derived from the reticulo-endothelial system. He claims to have found all transitions from hystiocytes to monocytes.

In the adult it is generally believed that the granulocytes are produced in the bone-marrow, the lymphocytes in the lymphatic tissues and spleen, and the monocytes in the spleen, liver and bone-marrow.

We will take each class separately.

The granulocytes or granular leukocytes originate for practical purposes from the myeloblasts. These develop into myelocytes, then into metamyelocytes or juveniles. The nucleus of the myelocyte is oval with a regular edge. When the nucleus becomes indented, it is the metamyelocyte, young form or juvenile. As the nucleus shrinks further, it becomes rod or band shaped, and this type of metamyelocyte is then called the band, rod, or stab form. As further pyknosis occurs the nucleus becomes broken into several large knobs or segments connected together by a small thread and then we have the true segmented forms. This is conceded by practically all authorities as the development of the granular cells. This occurs in the neutrophiles, eosinophiles and basophiles. The different types of granules are formed early in the myelocytes.

The platelets are, according to Wright, disconnected processes of the megakaryo-

*Read before Our Lady of the Lake Sanitarium Staff, Baton Rouge, April 22, 1931.

cytes in the bone marrow. Petri does not believe that this is their origin. According to Schilling, the blood platelet itself, is the entire modified nucleus of the younger erythrocytes, partly detached, and only becoming free in the circulation.

The classification of the cells according to their ages is approximately as follows:

Lymphoblasts, large lymphocytes, small lymphocytes.

Promonocytes, monocytes.

Myeloblasts neutrophilic, myelocytes, juveniles, stab or band, and segmented.

Eosinophilic myelocytes, eosinophiles.

Basophilic myelocytes, basophiles.

The first to bring out a nuclear index was Arneth. He classified them as to the number of lobes in the nucleus. Class 1, 5 per cent; II, 35 per cent; III, 41 per cent; IV, 17 per cent; V, 2 per cent. He then divided each class according to the number of knobs and S-like pieces of chromatin giving a total of 20 classes.

This was modified by W. E. Cooke to five classes by only taking note of the connecting band between the different nuclei. He states that "if there is any band of nuclear material except a chromatin filament connecting the different parts of the nucleus, that nucleus cannot, for the purpose of the count, be said to be divided."

As the Arneth count did not make any provision for the younger cells, it was modified by Victor Schilling to include these and all adult segmented cells were placed in one group. He classified his cells for practical purposes as follows:

Total White Count	Basophiles,	Eosinophiles,	Mye.	Juv.	Bands,	Segm.	Lymphocytes,	Monocytes
			Polynuclears					
6,800	.5 (0-1)	3 (2-4)	0	0	4 (3-5)	63 (58-66)	32 (21-25)	6 (4-8)

This he speaks of as a hemogram.

Taking the polynuclears arranged in their proper rotation of myelocytes, juveniles, bands and segmented, a shift to the left means that there are more young cells than normal. The greater the shift to the left the younger will be the cells. In a shift to the right, there is a diminution of the young cells in the blood or they may be totally absent.

The number of immature cells is slightly higher in nurslings than in the adults.

In order to properly identify the cells, a very good stain is required. Giemsa is generally used. This may be used alone or the slide may be previously stained with May-Grunewald or Wright's stain. Giemsa brings out the nuclei and protoplasm while the May-Grunewald brings out the granules.

In making the count, Schilling uses the four field meander method.

The Schilling count has been used for diagnosis and prognosis in this laboratory for about eighteen months. I have found it very valuable both in diagnosis and prognosis.

It has nothing to do with the total count. We may find a high count with a low Schilling and a low count with a high Schilling.

For the purpose of evaluation of the blood findings, I personally prefer to have a complete hemogram which gives me the total red and white counts, hemoglobin, color index, differential count with Schilling count, platelet count, and the types of immature cells in the blood. This latter takes into consideration the immature cells in the neutrophiles, lymphocytes, monocytes and any other that may be found. This last tells us the condition of the cell manufacturing centers and how much reserve we have at any given time.

Schilling divides the blood phases of infections as:—

(1) The neutrophilic battle phase; (2) The phase of monocytic defense or subjection and (3) the phase of lymphocytic cure.

His rules are as follows:

(1) Slight irritations cause only functional changes in the leukocytic picture; medium irritations act through the leukopoietic organs; severe irritations also act upon the development of the individual cells, very severe irritations restrain through paralysis of the central, and destruction of the central and peripheral cells.

(2) In most of the infectious processes, the neutrophiles respond to the irritation first, then the monocytes, finally the lymphocytes; the difference in the infectious blood pictures is caused by the temporary shift of three phases and by the varying intensitiy of the reaction of the individual groups, or by the appearance of rarer cell forms.

However, the blood pictures must always be observed together with complete clinical findings.

A definite and certain clinical symptom must never be disregarded because of a negative blood picture; nor should marked blood findings be disregarded because of absence of clinical symptoms.

SOME SCHILLING EXAMPLES

R. B. Pneumonia, Adm. 4/12/31 Died 4/14/31

Total White	B	E	M	J	B	Seg.	L.	M		
4,850	0	0	0	4	84	3	6	3	Immature count	88
					91					

R. M. Tuberculosis, arrested.

Date	WBC									
3/10	7,400	0	0	3	0	34	34	24	5	Influenza 34
					71					
3/31	6,550	0	0	0	0	17	45	31	7	In bed 17
					62					
4/7	7,300	0	1	0	0	16	51	34	8	16
					57					
4/14	5,300	0	3	0	0	21	31	36	9	Lost 1 lb. in week 21
					52					
4/22	6,825	0	4	0	0	10	45	33	8	Gained 2½ lbs.

J. P. V. Traumatic Pneumonia, right.

4/15	20,925	0	0	1	2	23	55	9	9	S. C. 26
					81					
4/16	19,550	0	0	0	1.5,22.5		64	6	6	24
					88					
4/17	13,700	0	0	0	3	12	73	11	1	15
					88					
4/18	9,025	1	0	0	2	16	68	10	3	18
					86					
4/21	12,300	0	4	0	1	8	67	17	3	
					76					

CONSERVATIVE GYNECOLOGY:

ITS RATIONALE AND ITS END RESULTS.*

C. JEFF MILLER, M. D.,

NEW ORLEANS.

I have quoted many times before, and I expect to quote many times again, a wise remark of Howard Kelly's, to the effect that surgery, developing in the hands of men, has dealt too lightly with mutilating operations in women, and that if the case might be reversed for several decades, with women operating and men suffering the mutilation, there would undoubtedly be a large prepossession in favor of a wise conservatism. His comment, made many years ago, is still timely, for gynecology, in the modern phrase, has "gone surgical." There is a general tendency to resort to operation without a careful consideration of simpler measures which would be quite as effective for the patient, and very much safer. There is a general tendency to remove the female sexual apparatus, in whole or in part, on promiscuous and casual indications which, in another part of the body, could only be considered trivial. There is a general tendency, since the ablation of the genitalia is not a procedure which carries an inordinately heavy risk, to disregard the fact that a woman's whole scheme of existence takes its point of departure from her pelvic organs.

Conservatism, however, is an entirely relative term. Its implications vary in different ages. A century ago it was conservative to refrain from all surgery except such as was absolutely lifesaving, and hundreds of women died from uterine and ovarian tumors which today the least radical of gynecologists would feel warranted in removing on the simple indication of their presence. Seventy-five years ago, when operation for such conditions had been generally accepted, it was conservative to resort to it only when the tumor was very large or the patient had suffered a good deal. Fifty years ago it was conservative to treat uterine fibroids by oophorectomy, a procedure little short of barbarous to us of this age.

Plainly it is a case of other times, other manners. But at that, it is not always easy to define conservatism. There is no such thing as an operation which is fundamentally conservative, even though, speaking categorically, preservation of structure and function is always to be preferred to their ablation. Circumstances alter cases, and a sense of proportion is necessary in the evaluation of any procedure, though it must be constantly borne in mind that a perfect surgical result, desirable though that be, is never the only result, for when a woman's pelvic organs are in question, function, other things being equal, deserves quite as much consideration as do mortality and morbidity.

Social and economic factors likewise play an important part in the management of gynecologic conditions, and I have little patience with the surgeon who boasts that they never enter into his calculations. It would be much better for all concerned if they did. It is undoubtedly unfair that a woman of leisure, in an adequate financial environment, should be permitted a conservatism which a wage-earning woman, a woman in straitened circumstances, a mother of many children, or even a woman of limited intelligence, cannot possibly be permitted, but those are the facts. A conservative operation which entails the risk of secondary surgery later may be entirely justified in a young, well-to-do, recently married woman, but it would not be justified in a woman approaching the menopause, a woman who is the mother of a family, or a woman whose livelihood depends upon her own exertions.

We meet such problems in our private work only too frequently for our peace of mind, but we meet them much more often in public practice. I meet them particu-

*Read at the sectional meeting of the American College of Surgeons, Little Rock, January, 1931.

larly often on my colored service at Charity Hospital, as does every surgeon who deals with colored women. To take a single illustration: these patients are especially susceptible to gonorrheal pelvic infections, for which the accepted treatment is prolonged rest, isolation from the source of infection, and surgery only when conservative measures have failed and symptoms continue to recur. I am in hearty accord with these principles, as I shall point out shortly, and I applaud the excellent results of the gynecologists who employ them. But as far as my colored service is concerned, they are utterly impractical and utopian. These patients can often be cured symptomatically, even when their pelves are anatomically wrecked, if I may so express it, by following the regimen I have just outlined, but their cure is seldom permanent. In the majority of cases, if we discharged them at this stage, they would return to us at a later period, and to the charge of the state, with the same pathology in an even more aggravated form. The unhygienic conditions under which they live, their dependence upon their own efforts, make it quite impossible for them repeatedly to lose time from their work or their families, while their lowered moral sense and their limited intelligence make it equally impossible for them to protect themselves against re-infection. We must choose between operating before our better judgment dictates, or permitting them to leave the hospital in little better condition than when they entered it. As a rule, therefore, when we have cooled them down, when the criteria of the delayed operation have been met, we operate on them promptly, we clear out their pelves thoroughly, and we consider ourselves conservative, radical though we may seem. What is desirable and possible on a private service may be equally desirable but quite impossible on a public service, and we simply stultify ourselves by refusing to face the facts.

On the other hand, the whole problem of pelvic infection is an excellent example of the case for conservatism. For the last twenty years, since Simpson first advocated the method, expectant treatment has been rather generally the rule, but recently the pendulum has been swinging to the other extreme again, and we have had a plea for immediate operation made by a group of men whose brilliant individual results, at least from the standpoint of their immediate mortality, I unhesitatingly grant, though their arguments otherwise seem rather specious.

In the first place, a certain percentage of these patients, even in the colored race, will always recover spontaneously and the first attack will be the last. Certainly abdominal section under such circumstances cannot by any process of reasoning be regarded as conservative, quite aside from the fact that, when immediate operation is done, complete pelvic débridement, which is an extremely radical procedure, is usually necessary. I grant the argument that a woman who has had an attack of gonorrheal salpingitis is very likely to be sterile thereafter, but even at that, I cannot see that she is any more absolutely sterile than is her sister whose tubes have been removed at laparotomy during an acute attack. I would remind you, too, that statistics for expectant treatment show a 10 to 12 per cent chance of subsequent pregnancy, a possibility which immediate operation automatically eliminates. As to the conservative procedures supposed to be practical if immediate operation is done, few positive results from them have been reported, and recurrent pelvic disease and extrauterine pregnancy are not rare sequelae. It cannot be gainsaid that when radical treatment is instituted, these women—and most often they are young women—emerge from the operation in the vast majority of cases functionally destroyed, and frequently facing in addition the distressing symptoms of a premature menopause, which is always stormy in proportion to the youth of the patient.

In the second place, radical treatment, despite the excellent showing of Bonney,

DuBose and their chief followers, will increase the mortality of pelvic disease many times. Under this plan it was formerly as high as 20 per cent, and recent studies show that 90 per cent of the operative mortality for tubal disease and 75 per cent of the postoperative morbidity still occur in patients who have not been properly cooled. These are collective figures, and they are therefore more to be relied on than the figures of the authorities I have just quoted, for it must never be forgotten that the bulk of all surgery is done, not by surgeons of eminence, but by men of average ability, or, to speak bluntly, of small ability, whose disregard of established principles is likely to meet with swift and certain retribution.

Finally, the patient herself should have some say in the matter of what is to be done to her. Her chances of a clinical cure under expectant treatment are reasonably good, her chances of a functional cure are decidedly more dubious, but if she understands the circumstances, if she is so situated that she can take the risk, she has a perfect right to take it. It is quite possible that she may prefer to retain her pelvic organs, damaged though they be, on the analogy, as Chipman puts it, that half a loaf, and a painful loaf at that, is better than no bread. She is the best judge of her own desires and her own condition. If any patient of mine considers herself well, if she is able to resume her normal habit of life and to do her daily work with only brief periods of disability, I am quite ready to agree with her that she is well, even though the pelvic findings may not be entirely to my liking. A woman's sexual organs are the basis on which her whole life is founded, and her sexual sanctity—I feel very strongly in this regard—should be violated only in the face of an urgent need. Which need, I might add, a single attack of salpingitis rarely constitutes.

When once the necessity for operation has been established, however, then radicalism becomes conservatism. When the abdomen has been opened, if the disease is specific or tuberculous, then bilateral salpingectomy is the only procedure which can guarantee against its recurrence. In tubal disease, almost more than in any other pathology, the sanest surgeon, the safest gynecologist, is he who refrains longest from the practice of his art, but who, when obliged to exercise it, tempers his conservatism with sufficient radicalism to ensure for his patient a permanent cure.

But his ruthlessness must not be extended to organs not involved in the infectious process. Routine removal of the ovaries, for instance, after either salpingectomy or hysterectomy cannot be too strongly condemned. In pelvic disease of specific origin the ovary is frequently not essentially diseased, it has simply been in bad company, and its conservation is always indicated if it seems likely that extirpation of the primary focus of infection will relieve its acquired pathology. If the ovary is essentially diseased, on the other hand, the situation is very different, and oophorectomy is usually indicated. Resection simply paves the way for future trouble, and while ovarian grafts are useful in a small percentage of cases, their field is very limited indeed. I am aware that the final facts are still in dispute as to the fate of conserved ovaries, but until we know more of their part in the internal economy after the menopause, we should not remove them without due cause, quite aside from the fact that excellent results from the conservative method are reported by many competent authorities.

I do not hold, either, with the routine removal of the uterus simply because the tubes have been removed for specific disease. If it is intrinsically diseased, hysterectomy must naturally be done, but otherwise I do not see the logic of the procedure. For one thing, it adds, unquestionably, a definite if minimal risk to the operation. For another, it ends menstruation forever, and though that function is the curse of the female sex, most

women are perverse enough to desire its continuance, even when the more important function of conception cannot occur. Sampson's recent studies in post-salpingectomy endometriosis would seem to put a different complexion on this subject, but I have not yet seen such sequelae in sufficient numbers to make me change my views on the preservation of the uterus after removal of the tubes.

We have come very far from the surgeon who, as late as 1886, said, "I shrink and have a feeling of terror come over me when I find myself obliged to do a hysterectomy," but it might not be altogether a bad thing if there were some such feeling of fear abroad in surgical circles today. For hysterectomy has become the most abused operation in gynecology. It is still being performed for the so-called essential uterine bleeding, though it is not warranted in one case in a hundred, since the uterus is simply responding to the evil stimulation of dysfunction elsewhere. It is still being performed for uterine bleeding when the trouble is extrauterine and even extrapelvic. It is still being performed, though I grant usually unintentionally, for bleeding that has its origin in some complication of pregnancy.

Hysterectomy is often performed very unnecessarily for uterine fibroids, for which either myomectomy or irradiation should always be first considered if the tumor does not fall into that small group of symptomless growths which need no treatment at all. Myomectomy is an operation which, at least in private practice, has a wider field than is generally supposed. In competent hands the mortality and morbidity are no higher than they are in hysterectomy, and from the standpoint of both the menstrual and the child-bearing function the end results are extremely good. On the other hand, it is not conservatism, it is the height of unwisdom to perform it if the uterine musculature is seriously damaged either by the existing pathology or by the surgery necessary to remove the growths, and it should likewise not be performed if the appendages must be removed for tubal or ovarian disease, or if the woman is at or near the menopause.

Irradiation is another procedure which can be either conservative or radical. Since it most often means the complete destruction of function, it is seldom the elective treatment for fibroids in women under forty, though it is the ideal method for selected cases after that age, as well as for the menorrhagias of ovarian origin. Even in young women and in girls, though it is frankly a last resort, it can be used in graduated doses to check uterine bleeding and produce a temporary amenorrhea. As Howard Kelly says, it is notoriously difficult to terminate menstruation in early life, even when that is the aim, and he adds that the advocates of surgery certainly possess no magic by which they can extirpate the uterus and at the same time preserve function. In the rare instances in which graduated irradiation fails, then hysterectomy is to be preferred to a menopausal dose in young women, for very serious consequences may follow the abrupt ablation of ovarian function by the use of radium or the roentgen-ray.

Hysterectomy for hydatidiform mole has always been an unwarranted procedure. The disease is relatively rare, and chorioepithelioma as a sequel is even rarer; 50 per cent of such malignant tumors are preceded by moles, but the reverse of the statement, often advanced as a fact, is positively not true; 50 per cent of moles do not develop into chorioepithelioma. Even in the days when microscopic study of the uterine scrapings, which is admittedly an unsatisfactory and inconclusive procedure in this special disease, was the chief diagnostic resort, immediate hysterectomy was scarcely justified, and now that the Aschheim-Zondek test has given us a practically infallible diagnostic measure, there is no excuse for it whatsoever.

Time does not permit me to discuss other conditions and other procedures. I cannot do more than point out that the curette, that much maligned and much abused instrument, can, if properly employed, avert many radical and serious and unnecessary operations. I cannot do more than point out that diseases of the cervix should be handled far more frequently by prophylactic cauterization promptly after labor than by delayed surgery, and that, if surgery must be done, trachelorrhaphy, or the Sturmdorf or the Schroeder operation, all of which are usually possible after proper preparatory measures, should be done far more frequently than amputation with its chain of evil consequences. I cannot do more than point out that retroversion of the uterus is not, *per se*, an indication for a displacement operation, and that surgery should be done only when it is clear that the symptoms complained of are the proven result of the malposition. I cannot do more than point out that endometriosis introduces a most delicate problem, and that in its management radicalism and conservatism are divided only by the narrowest of lines.

The conclusion of the whole matter obviously does not lie in categoric classifications. The simplest procedure may be at times a very radical one, the most radical procedure may be at times true conservatism. The important consideration is that not only the immediate but the end results of every mode of treatment shall be evaluated; not only operative mortality but ultimate function; not only the patient's physical well-being but her mental and spiritual equilibrium. For gynecologists, beyond all other physicians, hold the happiness of women in their hands quite as much as their lives and their health, and it behooves them to take earnest heed that they preserve them all alike.

SENILE VULVITIS AND VULVO-VAGINITIS,

With Special Reference to Trichomonad Vaginalis Infection.*

LUCIEN A. LeDOUX, M. D.,

New Orleans.

The vulvitis and vulvo-vaginitis, nonspecific in character which is frequently noted after the menopause, presents several features of unusual interest, and is therefore worthy of more than casual consideration.

The origin of this disturbance in these types of cases, is too frequently taken to be the result of a common leucorrheal infection, and insufficient study and a lack of appreciation of the possible underlying causes, often accounts for the failure to achieve permanent results in its treatment.

The cessation of the sexual physiologic life in the female, is evidenced in many ways, one being the gradual atrophy of the sex structures, the vulva showing marked changes, the mons-veneris losing its firmness and adipose tissue; similar changes appear in the labia and sebaceous glands, resulting in the loss of tissue elasticity and lubrication. These changes are noted especially in women who have reached the menopause at a later period than the average and who may have been classed during their active life as of the hyperthyroid type.

These tissue changes produce a type of dermatitis, which appears to be greatly aggravated by the sensory changes which are typical of the general changes in the nervous system at that time, and the resultant irritation is very disagreeable and at times becomes very painful, producing in extreme cases a complete demoralization of the individual with loss of appetite and weight, sleeplessness and acute nervous system upheavals, all of which should

*Read before Orleans Parish Medical Society, January 26, 1931.

serve to emphasize the fact that cases of this type, should not be dismissed with a prescription for calamine lotion, and instructions to take a daily hot sitz bath, for while these are helpful, they are not sufficient.

Senile vulvitis is generally unaccompanied by a vaginal discharge; if it is, it is unusually slight, therefore treatment should be directed to relieving the general menopause symptoms as well as attempting to allay the local irritation.

The institution of vigorous hygienic measures, with emphasis on the relief of constipation, sedatives, my choice being the bromide of sodium in sufficient and frequent doses, iron, strychnine and arsenic, endocrine therapy as indicated in the particular case, using the specific harmones separately, never in combination, usually lutein or thyroxin or both, the kneechest position to improve the pelvic circulation, the ingestion of large amounts of water, and a diet which tends to be slightly greater than normal in fats.

The local treatment should consist of hydro-therapy in the form of sodium bicarbonate hot sitz bath, pure co'd cream with the addition of phenol, menthol, and in some cases cocaine hydrochloride, anointing the vulva, particularly the labia, freely, at least three times daily, and also the use of the sun lamp.

When the dermatitis is exfoliative, careful cleansing with the tincture of green soap, followed by the application of zinc oxide ointment will afford much relief.

Such a plan of treatment will do much to correct the disability in these types of cases.

In vulvo-vaginitis we have the typical appearing leucorrheal discharge, but in some cases, while it is yellowish white, it presents in addition a frothy appearance, as though filled with air bubbles, this is often noted upon separating the labia or after further examination with the speculum.

This produces at times a vulvitis and vaginitis, the vaginal mucous membrane is inflamed, as is the cervix, the latter showing small, various shaped ulcerated areas. The surface bleeds easily to the touch and it may be very painful.

Examination of this discharge by the usual methods of staining and preparation will not reveal the offending organism in such cases, but examination in the fresh, will demonstrate the presence of a large number of flagellates identified as the trichomonad vaginalis.

Infection with this type of organism is not infrequent, it may occur at any time during the sexual life of the female, and is often the causative factor in the production of vulvo-vaginitis after the menopause.

Whether this organism is truly pathogenic or saprophytic, I am unable to say; I have found this infection in women after the menopause, during long, lingering illnesses and pregnancy, periods of relative, sexual inactivity, which suggests that it is a saprophyte, though, as I have already mentioned, its presence has also been detected in other periods of life.

The organism is associated with evidence of desquamation, of varying degrees, with pus cells present, and at times, few if any other organisms.

The pathogenic changes resulting from its activity is often intense, at other times mild, and it is an infection, while easily controlled, nevertheless difficult of complete eradication.

A search for the trichomonad vaginalis should never be made immediately after douching or while the patient is receiving active, local treatment, as these mitigate against successful diagnosis. Likewise, the presence of blood in the vaginal tract seems to lessen our ability to find the

organism, a circumstance for which I can offer no plausible explanation.

Given such a case, if the usual methods of treating leucorrhea are employed, the infection will be controlled to an extent, but any semblance of a cure can not be anticipated, as it positively resists our ordinary efforts.

I have seen a number of cases, of two or three years duration, labelled as simple leucorrhea, without microscopic examination, complaining of severe symptoms, shortly after douching and other local treatments has been discontinued.

The method of treatment that I have used is briefly as follows: When I first attempted the treatment of these infections, I routinely irrigated the vagina with sodium bicarbonate solution, and cleansed thoroughly with tincture of green soap. Afterwards the field was thoroughly dried and the full surface treated with a 2 per cent solution of mercurochrome. After drying, the patient was instructed to take a vaginal douche, using one drahm of powdered zinc sulphate to a quart of warm water, twice daily. Zinc oxide ointment was then applied with a tampon every other day for a period of eight or ten days and the relief afforded by this method of treatment was conclusively better, but by no means complete, as in a number of cases, subsequent examination revealed continued infection.

In recent month I have had occasion to supplement this treatment, with vaginal application of a solution of pyroligneous acid, and using Lassars paste, which is composed of salicylic acid, zinc oxide, starch and petroleum, as a tamponade, every other day for two or three treatments.

This was a suggestion offered by Dr. S. G. Kleegman, S. G. O., October, 1930, who has had considerable experience in the treatment of this disease, and she reports on controls of cases showing cures in 85 per cent of her cases. It appears, therefore, that we have the necessary medical aids in caring for this problem, yet a cure cannot be claimed until the patient has been without treatment of any kind for at least four months and successive examinations are negative.

CONCLUSIONS.

(1) Simple, non-infectious vulvitis after the menopause, should be treated both locally and systematically.

(2) Trichomonad vaginalis infection is frequently the cause or sustaining cause of vulvo-vaginitis after the menopause.

(3) Every case should be studied microscopically, using a fresh specimen as the usual method of staining are of little value.

(4) Treatment should be thorough and controlled by microscopic examination.

(5) Four months without treatment and repeated negative examination are necessary before assuming that the infection is non-existent.

DISCUSSION.

Dr. F. M. Johns (New Orleans): Dr. LeDoux has undoubtedly requested me to open this discussion to present my views concerning the pathogenicity of the trichomonad vaginalis in relation to vaginitis, as we have on several occasions discussed this problem.

I feel quite certain that these protozoan parasites do not directly invade the mucosa of the vagina, rectum or large intestine upon whose surfaces they may very often be found. Reproduction of these protozoa takes place in the fluids bathing these mucosal surfaces and have not been demonstrated in tissue sections. They multiply to great numbers if the fluid is rich in albuminoid material as it always is in the presence of inflammation of the mucosa from any cause whatsoever. In the vagina they occasionally thrive on the exudate poured into that cavity from a chronically inflamed uterus, and in some of these instances there is no demonstrable viginitis.

It is conceivable that some toxic material may be formed as an excretion product or liberated from those protozoa that die and disintegrate. This has never been proven. It is, however, almost certain that if trichomonads are present in any considerable numbers in any of the body

cavities there is certainly an inflammatory condition present that definitely needs treatment.

It was rather amusing to see in a recent number of S. G. and O. an article on trichomonad vaginitis illustrated with a cut containing several parasites with four flagella each! The clinical deductions made by this author are probably just as correct as the picture.

Dr. LeDoux (closing): There is not very much to add but I do want to thank Dr. Johns for his very excellent discussion.

Whether trichomonas itself is capable of producing these changes or not I do not know, but it appears from a study of these cases that the leucorrheal discharge having already begun as a result of bacterial infection, trichomonas seems to be the sustaining influence in the continuance of the discharge and unless we keep in mind the necessity of eradicating the sustaining influence, as well as the predisposing cause, we are going to have a continuance of the infection for an indefinite period.

POST-ENCEPHALITIC EPILEPSY,

WITH A REPORT OF TWO CASES IN CHILDHOOD.*

EMILE NAEF, M. D.,

BATON ROUGE.

Epidemic encephalitis and its sequelae have been extensively described in the medical literature of practically every country since its initial appearance in Vienna in 1917 and its subsequent appearance in New York in March, 1918. Von Economo, observing the earliest cases in the Austrian epidemic, recognized a group of symptoms of sufficiently typical characteristics to be classed as a separate clinical entity and contributed the first description of the syndrome appearing in the literature. The assumption that epidemic encephalitis existed previously is well founded, a somewhat similar epidemic called "La Grippe Cerebrale" by the French writers having appeared in all parts of the globe in 1892. Much of the earlier writing on epidemic encephalitis was devoted entirely to description of the acute stage of the disease and the etiology, while latterly the pathology and sequelae are given more attention.

Epidemic encephalitis, while frequently affecting children, is not predominantly a childhood disease. Hall,[1] in 1925, reporting his observations on 500 cases at all ages, found about 40 per cent occurring in persons under 16 years of age. However, it may occur at any age, one case being reported in a newly-born whose mother was ill with the disease at the time of labor.

The disease is essentially a winter or early spring disease, occurring at a season of the year when influenza is prevalent, and virulent organisms may be implanted in the throats of individuals not actively manifesting symptoms of influenza. This fact opens an etiological point of observation, though whether the disease is caused by a pleomorphic form of the influenza bacillus, by a filterable organism not yet differentiated, or by the activation of some latent infection, remains to be established. Gorter[2] thinks it improbable that encephalitis is ever caused by any activation of a latent infection. Throckmorton,[3] however, is convinced that once the disease is contracted, it may become latent, with acute manifestations flaring up after prolonged intervals of entire freedom from the disease. Price[4] reports a recurrence in a patient one and one-half years after recovery, and attributes the return of symptoms to a "probable recrudescence of encapsulated infectious foci, rather than a reinfection from an outside source."

Several salient features of encephalitis have become well established facts, among which is the definite infectiousness of the disease, but with less tendency to appear in epidemic form than was formerly supposed, many sporadic cases being reported from widely scattered districts.

Another well-established fact is that the disease may attack any part of the central nervous system from the brain to the spinal

*Read before the Louisiana State Pediatric Society, April 13, 1931.

cord, the basal ganglia and the brainstem being most frequently involved.

Our further knowledge of the disease reveals the fact that so multiple and varied are the symptom-complexes that many cases defy complications in spite of persistent attempts to classify them. The lethargic, the paralysis agitans type, the polioencephalitic, the acute anterior poliomyelitic, the posterior poliomyelitic, the epileptomaniacal, and the acute psychotic type[5] are types of the disease encountered, though many cases could meet the requirements of two or more of these types depending on the multiplicity of the symptoms and signs presented.

Fairly typical laboratory findings are encountered in epidemic encephalitis when evaluated in conjunction with the neuromuscular signs and the course of the disease. The blood usually shows a moderate total leukocytosis, the differential count approaching normal. The spinal fluid is usually obtained under pressure, and in my experience, has practically always been obtained under increased pressure, though some writers claim increase of cerebro-spinal pressure in only 10 per cent of these cases. The fluid is clear and limpid with a normal or slightly increased globulin and albumin. The frequently reported increase in sugar is dependent on the carbohydrate intake, the amount of sugar in the spinal fluid being normal if the specimen is collected after a 12-hour fast.[6] These findings bear a close resemblance to the findings in poliomyelitis, though poliomyelitis shows a more constant and marked increase in neutrophiles and globulin, with more tendency to pellicle formation. Any marked abnormality of the spinal fluid findings immediately suggests a meningitis.

Sequelae of some kind occur in from 80 to 90 per cent of these patients, depending on the amount of damage to the cells of the central nervous system, which however bears no relation to the severity or mildness of the symptoms during the acute stage. The sequelae fall chiefly into two main groups: the behavior disturbances and the parkinsonian-like syndromes.[7]

The mental sequelae or behavior disturbances of encephalitis present themselves in every degree of severity from the comparatively mild "difficult child" type to the dreaded extreme of complete idiocy, while rarely manic depressive insanity remains as a sequel. The difficult child is one who does not respond to discipline, lacks concentration and is readily fatigued by slight mental effort; whose emotions are usually dulled and frequently has completely disoriented himself in relation to sleep, being dull and sleepy during the day, and wakeful and restless at night, often talking loudly, whistling, and singing during the period of insomnia. He wears the expressionless facies of facial paralysis and registers little emotional response to external stimuli. Exophthalmos, more apparent than real (because of staring expression and widened palpebral fissures) is sometimes found. Between this dull, retarded type and post-encephalitic idiocy appear the cases of complete character change, where children formerly well-behaved become sneak thieves and falsifiers, develop habits of wandering from home, engage in street fights, become filthy in personal habits, sometimes exhibit precocious sexual tendencies, and rarely manifest homicidal or suicidal mania. The post-encephalitic idiot drools saliva almost continuously, articulation is difficult and speech becomes heavy and monosyllabic; habit-tics are frequent; lack of sphincteric control may be present, and finally a complicating parkinsonism may be present, further typifying this class of unfortunate.

The neuromuscular sequelae include the much-described parkinsonism, epileptoid states or frank epileptic seizures, ataxia and chorea, while hemiplegias, paraplegias, and monoplegias, often described in the earlier literature of encephalitis, are rarely mentioned sequels in the more recent writings. Kennedy[8] reports parkinsonism in 34 per cent of a series of 61 cases. Anderson,[9] however, found it occurring only

once in forty of his cases. The ocular manifestations—forced conjugate upward movement of the eyes—appear as a part of the post-enchephalitic parkinsonian syndrome, these ocular spasms having been first described by Holman in 1925. In these cases the mechanism affected lies in the corpus striatum and its connections with the anterior quadrigeminal bodies and the oculomotor type. A rare type of post-encephalitic residual is a spasm involving an extremity, described in 1924, by Lemos,[10] who designated it intermittent claudication. In the case described, cramps of the muscles of mastication and of the arms appeared, together with conjugate deviation of the head and eyes, regarded by the author as due to a crisis of extra-pyramidal hypertonia probably based on a lesion occurring in the corpus striatum. Throckmorton reported a case in a 21-year adult in whom three distinct attacks of epidemic encephalitis appeared, the most recent one being complicated by spasms involving the right arm and leg—more especially the arm—and at times causing conjugate deviation of the head and eyes with spasm of the facial muscles, but with no loss of consciousness, thereby presenting a typical Jacksonian epilepsy.

Epilepsy and the epileptoid states occur as residuals of epidemic encephalitis in a small percentage of cases. Stern, reviewing 450 cases of epidemic encephalitis, encountered only one case of persistent epilepsy. Prof. Wimmer[11] of Copenhagen in 1927 reported 23 cases of encephalitis with epilepsy. It is interesting to note that Wimmer qualifies these convulsive seizures as "epilepsy in chronic epidemic encephalitis," feeling that they belong to the active, chronic, infectious process in the central nervous system, rather than to the symptom-complex of truly post-encephalitic residuals. Reviewing these case reports one is impressed with the variable length of time elapsing between the acute attack and the first typical epileptic seizure, the time ranging from one month as the earliest to seven and one-half years as the latest time at which epilepsy developed after the encephalitis.

Two cases of epidemic encephalitis are reported, with residual epilepsy developing in the first case seven and one-half months after the initial acute symptoms and one and one-half months following onset of symptoms in the second case.

Case R. C. B. White male, aged 3½ years. The family history is irrelevant, the patient being the fifth pregnancy; both parents, two brothers and two sisters living and well. Whooping cough at four months of age, pneumonia at one year and measles at 18 months. Tonsils and adenoids removed at twenty-two months of age. At six weeks of age had continuous convulsions for one day. Seemed perfectly normal physically and mentally until onset of present symptoms.

Forty-eight hours previous to first observation, July 22, 1928, patient had a convulsive seizure lasting about thirty minutes. With colonic flushing and alcohol sponging, patient relaxed and seemed inclined to sleep almost continuously. Temperature rose shortly after the convulsion; in the late afternoon of day of onset had a second convulsion of five minutes duration, following which he seemed unable to use the left arm and hand and lapsed into a state of complete somnolence from which the patient could be aroused, though immediately lapsed into a deep sleep. Vomited once at onset of symptoms.

Physical examination showed a well-developed and well-nourished male child. Cranium of normal contour. Fontanels closed. Ears negative. Eyes have a stuporous stare, slight inequality of pupils, not constant, and hyperactive pupillary reflexes. Nares clear. Normal throat. No glandular adenopathy. Chest of normal contour. Lungs are clear. Heart negative. Abdomen scaphoid and doughy, minus two tissue turgor, spleen not palpable, liver palpable 2.5 c.m. Normal genitals. Left lower extremity spastic with passive accentuation of spasticity. Brudzinski's marked and Kernig's well marked. Patellar reflexes exaggerated on right and retarded on left.

Laboratory findings: Examination of blood on July 23, 1928, showed hemoglobin, 65; color index, 66; erythrocytes, 4,800,000; leukocytes per cmm., 12,200; small lymphocytes, 9; large mononuclears, 3; neutrophiles, 88.

Cerebro-spinal fluid: Amount, 15 c.c., color clear, water-white; erythrocytes, none; leucocytes, few; cell count, 15; globulin increased; sugar 15.3 mgm. per 100 c.c.

Progress: July 23, 1928. Spinal puncture produced 25 c.c. of a clear, lipid fluid under increased pressure. Slight spasticity of left lower extremity. Persistent stupor and fixed glassy stare. Sleeps a great deal and does not evidence pain. Temperature 103 3-5° rectal.

July 24, 1928. No spasticity, though seems uncomfortable when lying in prone position. Marked lethargy continues, though in late afternoon aroused and called mother. Brudzinski's and Kernig's signs positive.

July 25, 1928. Seems much less lethargic. No spasticity, and spinal puncture produced only a few drops of blood-stained fluid under normal pressure.

July 26, 1928. Bright and cheerful. Asks for food and parents. Brudzinski's and Kernig's almost entirely absent.

August 4, 1928. Two weeks after initial symptoms patient walked into office with the father, who detected a slight impairment in use of right leg and a tendency to unknowingly walk into objects. Physical examination at this time was negative except for a general sluggishness of motor activity, more marked in right extremity during walking, and slight impairment in speech. Patellar and other reflexes negative.

August 15, 1928. Gait is more regular and animated, and patient has shown no tendency to walk into objects. No spasmodic contractions or flaccid paralysis. Complains of occipital headaches. Physical examination negative. Slight impairment of hearing in right ear.

September 20, 1928. Weight 35 lbs., 10 oz., a gain of 2½ lbs. over weight of six weeks previous. Has become restless at night and again seems to "run into objects unknowingly." Complains of "ants biting him" over right eye and back of neck. Speech is more normal than at any time since onset. Examination of eye-grounds at this time reported negative. Entire physical examination negative. Hearing in right ear continues progressively defective.

February 26, 1929. Appeared at office with the description of "fainting spells" during the two weeks previous. During these seizures, five or six daily, of only a few seconds duration, consciousness is lost, a fixed momentary stare develops, pupils dilate, face becomes flushed and slight contractures of muscles are present. Sleeps well and has no seizures in sleep. No fever. Always has a premonitory aura.

April 30, 1929. Was admitted to hospital with temperature 103° following a severe convulsion of some five to ten minutes duration. On observation at this time was entirely relaxed, and free of convulsive twitchings, with no mental clouding, so no spinal puncture was indicated.

May 13, 1929. Yesterday had a severe convulsion of five minutes duration and presented the classical picture of an epileptic seizure, with biting of tongue and complete loss of consciousness. For past four days, has had twitchings of right hand and arm. Seizures are variable from 15 seconds to three minutes duration.

From May 13, until July 19, no epileptic seizures occurred. On July 19th a seizure of five minutes duration was observed and again a similar attack on August 24.

October 8, 1930, patient walked into office. From August, 1929, to February, 1930, had typical epileptic seizures at six to nine weeks intervals, and following these seizures for five or six days would have ten or twelve attacks resembling the so-called "absent state" of petit mal, when a fixed stare, momentary slight twitchings of facial muscles and fleeting loss of consciousness were present, with an occasional deep "crowing" inspiration at end of seizure. On February 22, 1930, had a most violent epileptic seizure since beginning of encephalitis, with loss of consciousness for nearly three hours (statement of mother).

For one year from this date, remained entirely free from epileptic seizures of any type when a return of the attacks of the petit mal was noted, February, 1931. At this time had three seizures in one day.

Ten days ago had three seizures within a half hour, these seizures presenting the classical picture of petit mal.

Examination at present time shows a fairly well-developed male child of apparent age, somewhat sluggish mentally and physically, with no impairment of function and normal to all neurological tests. Speech is heavy, with a tendency to lisping. Presents a complete character change with habits of wandering from home, hyperemotionalism, and defective memory and concentration. Complete loss of function of right ear.

Case H. J. A. Male child, aged 4 years. Mother living and well. Father has developed a sclerotic deafness and has entirely lost the function of one eye. Patient is the fifth pregnancy, the fourth pregnancy having miscarried. Three brothers and one sister living and well. No knowledge of tuberculosis, cancer or lues.

Full term, normal delivery, birth weight 7½ lbs. Has had none of the contagious diseases. Had flu in January; prior to present illness had never had a convulsion; no intestinal disturbances; is a persistent bed-wetter and has night terrors.

Forty-eight hours ago developed temperature 101° associated with slight watery nasal discharge but no cough. Temperature persisted between 100° and 101° and a marked change in disposition

developed, the patient alternating between periods of somnolence and excitability. Thirty-six hours after onset had a severe generalized convulsion of about five minutes duration.

On evening of admission to hospital, March 3, 1929, patient developed severe convulsive seizures lasting from five to seven minutes, recurring at intervals of from one to two hours; during the seizures, there is no biting of tongue but spasticity of all extremities follows, persisting for twenty or thirty minutes after each convulsion.

Temperature ranges between 100° and 101° by axilla. Patient has seemed mentally confused and restless since admission to hospital.

Examination shows a well-developed and well-nourished male child with temperature 100° by axilla. Confused mentally and generally restless, tossing arms and legs purposelessly. Normally shaped cranium. Normal ears, normal eyes, pupils equal and reacting. Normal nose, slight nasal discharge; mucous membranes of lips of good color, tongue slightly coated, tonsils not enlarged or reddened, pharynx reddened. No glandular enlargements, a chest of normal contour, lungs clear throughout. Heart not enlarged, no murmurs. Abdomen retracted slightly, spleen palpable at costal margin, liver 3.5 cm.; no umbilical hernia; normal genitals. Normal back. Spine freely flexible; no cervical rigidity. Babinski's and Brudzinski's signs negative, with retardation of patellar reflexes. 20 ccs. of a clear limpid fluid obtained by lumbar puncture under greatly increased pressure.

Laboratory findings,—March 5, 1929. Cerebrospinal fluid. 20 c.c. clear water-white fluid. Erythrocytes none; cell count 47, mostly lymphocytes, few leukocytes; globulin not increased; no bacteria found in culture or smear.

Blood examination on March 4, 1929, shows hemoglobin 60; color index 83; erythrocytes 3,640,000; leukocytes per cmm 6,000; small lymphocytes 32; large mononuclear 8; neutrophiles 58; eosinophiles 0; basophiles 2.

March 5, 1929. Spinal rigidity not present. Brudzinski's sign negative. Knee jerks retarded, mentality less clouded and motor activity more purposive. Occasional cough and moderate nasal discharge.

March 6, 1929: Playing with toys. All reflexes negative. Seems much brighter. Nasal discharge more viscid.

March 7, 1929: Was discharged from hospital much improved.

March 16, 1929: Was brought to office when physical examination was entirely negative and all central nervous symptoms had disappeared.

March 19, 1929: Recurrence of convulsions developed and patient was readmitted to hospital. Convulsions are of same type as on previous admission, occurring at intervals of one to two hours and lasting from two to four minutes each. Patient dazed and somewhat restless between convulsions, though took nourishment nad fluids readily. A lumbar puncture produced 10 cc's of a clear fluid under slightly increased pressure and of a slightly pinkish tinge.

Laboratory findings—Spinal fluid examination March 20, 1929. Amount 5 cc; color water-white; erythrocytes many; leukocytes few; lymphocytes few; cell count 792.5; tubercle bacilli not found and no organisms present; globulin not increased; Fehlings sugar trace.

Blood and spinal fluid Wassermanns on H. J. A. negative; blood Wassermanns on mother and father negative. (March 21, 1929).

March 20, 1929, Roentgen-ray examination of cranium shows an increased intracranial pressure. The irregularity of the outer table of the skull is rather suggestive of lues.

March 21, 1929: No convulsions during twenty-four hours.

March 22, 1929: Spent a good day having had no convulsions in past forty-eight hours.

March 23, 1929: At 5:45 a. m. had a convulsion followed by four other convulsions during the night. Is mentally excited and violent, screaming loudly and tearing at nurse and bed clothes. Profuse expectoration and drooling of saliva.

March 24, 1929: Continuing very restless and violent, takes nourishment well but sleeps only under sedative medication. Spinal puncture at this time produced 5 cc. of a clear fluid under normal pressure.

March 25, 1929: Continues very nervous and violent. Takes medicine and nourishment well. Eliminating well. Temperature normal since 2nd day in hospital. No convulsions and seems less violent, but still mentally clouded and restless. Takes long naps, and has had no convulsions since the night of March 23.

March 26, 1929: Awoke this morning after a 9-hour sleep and because of persistence in sitting up, was allowed in wheel-chair and seems less excited. Nourished well, temperature continues normal: No convulsions.

March 27, 1929: Nervous condition much better today, had a 3-hour nap, took all medicines and nourishment well and seemed more lucid. Sleeps well at night.

March 29, 1929: Resting well, no further convulsions. Nourishes and eliminates well.

March 30, 1929: Condition same as on previous day and on March 31 was discharged from hospital.

From March 30, to April 9, patient seemed normal and rational, though had developed a gait resembling paralysis agitans, while speech continued somewhat inarticulate. At this time a typical epileptic seizure developed and because of the remote possibility of lues, as suggested by the roentgen-ray report, antiluetic medication was administered. Because of aggravation of all symptoms following this plan of treatment, it was abandoned. Convulsions continued, 3 to 5 seizures daily, from April 10 to April 25, following which the patient's gait became more nearly normal and seemed better in every respect. Since April 25 epileptic seizures have recurred at intervals of 2 to 4 weeks. Mentality is sluggish and a slight impairment in gait persists.

August 2, 1929: Patient shows definite signs of mental deterioration with dull expression, fixed stare, and almost unintelligible muttering; drooling of saliva; complete lack of concentration and disorientation to time and pace. Marked insomnia, associated with a desire to be out of bed, alternating with periods of stupor, when he goes into a temper-rage if asked to leave the bed. Walks with the typical gait of paralysis agitans, and shows a coarse tremor of hands. Incontinence of urine and feces persists. Epileptic seizures continue severe and occur every two or three weeks.

Following this last observation, patient became so violent and unmanageable, it became necessary to place him in an institution.

Since beginning of institutional care the patient has been having typical epileptic seizures every three or four weeks, while mental deterioration has been slowly progressive. The parkinsonian gait and the coarse tremor of the hands have persisted.

COMMENT.

Both cases presented the mental and neuromuscular phenomena usually seen in encephalitis; the spinal fluid findings reinforced a first impression of epidemic encephalitis in the first case (R.C.B.), and established a diagnosis of encephalitis in the second case (H.J.A.), where the presence of a definite nasal discharge in conjunction with a reddened pharynx and a history of repeated influenzal infections caused a suspicion of influenzal meningitis. The latter case was undoubted'y influenzal in origin, though no signs of meningeal involvement ever presented.

Both cases confirm an earlier observation that encephalitis may recur in the same patient with variable symptoms, thereby evidencing the later changes of the same pathological involvement. The development of epilepsy as a residual appears as an end-result of chronic, progressive subcortical involvement, with sclerotic changes extending to or including cortical areas either through direct extension, or by traction of developing scar tissue on the cortex. Whether a post-encephalitic epilepsy is permanent is not known, because of limited observation through comparatively recent recognition of these cases.

Administration of ketogenic diets exerted no inhibiting effect whatever on the epileptic seizures in either of these cases.

Case R. C. B. is now a problem child and in spite of his year of complete absence from all symptoms will continue a potential epileptic of the milder type. Because of the rapid and extensive mental deterioration of case H. J. A., this patient will remain a permanent institutional case. The prognosis in any case should always be guarded, and, while not serious as regards life is always a potential menance to perfect development of the central nervous system.

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CASE REPORTS AND CLINICAL SUGGESTIONS

INACCURACY OF CLINICAL THERMOMETERS.

OSCAR W. BETHEA, M. D.,

NEW ORLEANS.

About two years ago I became impressed with the frequent inaccuracy of the clinical thermometers in common use, and in order to investigate the conditions that obtained in this particular field, I adopted the following plan:

I bought the best obtainable thermometers, several at a time, and sent them to the Bureau of Standards at Washington for standardization. I first tried the plan of placing two of these correct thermometers under the tongue of a patient, letting them remain for five minutes and comparing the readings. Repeated trials indicated the almost absolute correctness of the test if sufficient care was used in the procedure. I then began to test the thermometers in the homes of my patients, and while this was frequently inconvenient I have succeeded in thus checking the family thermometers in one hundred and sixty-four homes. The manufacturer's name could not always be determined, as many of the instruments only bore the name of the distributor. But altogether there were forty-three different labels and most of the common makes were represented. The results were as follows:

Correct	63
+0.2° F.	40
+0.4° F.	31
+0.5° F.	5
+0.6° F.	7
+0.8° F.	2
+1.0° F.	1
+1.4° F.	1
—0.2° F.	5
—0.4° F.	7
—0.8° F.	2

It will be noted that about one-third of these are so inaccurate that the information obtained might be decidedly misleading. In one hospital where this investigation was carried out, the thermometers were so uniformly inaccurate that the entire stock was thrown away and new thermometers of a different make were purchased. Illustrative of the conditions that have occasionally developed the following case will be of interest. A young lady attending a college in a distant city came to New Orleans for the Easter holidays. She complained of a slight headache, the family took her temperature and found that the thermometer indicated some fever. She was kept in bed throughout the entire Easter vacation as she still showed elevation of temperature. The family had not considered her sick enough to call in a physician, but I was summoned only when her return to school became a matter of importance. I found a perfectly well young lady and a thermometer that registered about +0.8° F. too high.

The usual inaccuracy is in the form of an elevated reading. This is due to a thermometer being finished and put on the market while it is still "green." A small amount of shrinkage later takes place and this has the tendency of forcing the mercury upward.

For the last two years I have made it a rule to accept no temperature charts from patients without having them submit their thermometers for testing.

REVIEWS

NOGUCHI

by

GUSTAV ECKSTEIN.*

A REVIEW

by

RUDOLPH MATAS, M. D.,

NEW ORLEANS.

No one who is at all familiar with the events that have marked the progress of the medical sciences in the last three decades can fail to recognize in Hideyo Noguchi on outstanding figure in the great advance of the century. To those who, like the writer, have had the privilege of a personal contact and watched him at work in his laboratory at the Rockefeller Institute, of New York, it is likely that they will retain not only the impression, but the conviction, that Noguchi was, in his own field of research, one of the greatest of contemporary scientists, an artist who worked in the technic of science with consummate skill, with the artistic fervor of a great virtuoso and achieved with an artist's vision.

But no one, whether he be merely a reader interested in the human side of a great man's life, or a physician chiefly concerned in the psychology and mechanism of scientific achievement, can read the story of the great Japanese master, as told by Gustav Eckstein, without being thrilled and electrified by the driving power of the narrative.

The Story of Seisaku, later known as Hideyo Noguchi, is that of a child born, in 1876, of poor peasant farmers in the village of Okinajima, an obscure province of Japan. The father was an intemperate n'er-do-well, but the mother,—Shika, was a sturdy and devoted woman who had seemingly inherited the heroic qualities of some of her yeoman ancestors, vassals of the Lord of Aizu,—which she apparently transmitted to her son. Unfortunately, the child when only beginning to crawl, fell into the family Urori,—an open brazier filled with live coals, which so terribly burned him that he barely escaped with his life and was left with a scarred hand which was little more than a stump. Despite this handicap, which made it look as if Seisaku would have no prosperity either as a "farmer or as a hero," he rose out of his poverty and other discouraging obstacles, to attract the attention and affection of his teachers. These, from his earliest school days, were struck by his precocity and extraordinary aptitude for acquiring knowledge.

At the primary schools the children jeered and taunted him for his deformity and ragged clothes. But he fights. "Seisaku does not come of Samurai, he comes of farmers; farmers settle things with their fists, even *one* fist." And he rises and the boys soon learn that he is cleverer and stronger than they; and when it comes to science, drawing and English, he is as good as the teachers themselves. He becomes a *Kyucho*, chief of the class, and no one would now dare to be rude to him.

Ever conscious of his affliction which keeps him aloof of all boyish companionship, he is taken by one of his teachers to Wanatabe San—a celebrated local surgeon of European and American training, in the distant town of Wakamatsu, who becomes interested in the boy and performs a plastic operation which releases the stumps of his burnt fingers out of the mass of scar. "The stumps now become movable. Each stands by itself, each moves alone, and the scars that glued the hand to the wrist are severed through. The hand hangs quite like anyone's hand." The operation works a miracle in the boy's hand and in the boy's mind. His youthful imagination is fired by the success of the operation and he resolves to

*Harper Brothers, New York, 1931, 8° Portrait and 13 illustrations, 419 pp. $5.00.

become a doctor. Yes, not only a doctor, but a Napoleon in his profession. "Not to fight battles, not to kill people, but to save them with a will of a Napoleon." The surgeon keeps him as one of his "drug boys,"—a sort of apprentice, and with this he reaches a decisive point in his career.

Among the Japanese doctors who practice in the countryside, there persists many traditions of Chinese Medicine. Burning with the noxa is a remedy for many ills, more powerful than many modern doctors think, "even a cure for stubborness in boys," and one of the doctors goes so far as to say that the burning of Seisaku's hand, has put something into his blood and it is that which gave Seisaku strength to stay up so, 'night after night, eternally reading and learning from books." For weeks, it is quite true, he has not so much as taken off his clothes. When late at night Wanatabe looks where the drug boys sleep, he always finds the youngest still awake. The boy "is Heaven and Earth for learning." Drug boys are supposed to bring their own bedding, but Seisaku has none and he sleeps on straw as he did at his mother's home on the farm at Okinajima. After all, "one sleeps but three or four hours a night and for that length it is possible to sleep soundly, even under the Master's desk."

A curious episode occurs while he works with his master, Wanatabe. A patient comes with a strange, long continued, undulating fever. The doctor prepares a slide with some of the patient's blood and to his surprise discovers among the corpuscles a minute spiral organism,—the spirocheta of relapsing fever! Wanatabe is excited by his discovery. He calls the drug boys and all five come running. They all see it. Seisaku sees these strange little corkscrew-like bodies and he lingers long at the microscope. This is fate . . . His life was changed looking into that microscope and when he steps back from it, he says a few words that would strike anyone as queer. He says that he *now* knows not only that he will be a doctor, but the kind of doctor,—a bacteriologist. It is probable that one or the other of the drug boys laugh, but Wanatabe, the master, does not laugh, for Wanatabe remembers how, with the same suddenness, this little Seisaku a little while ago, made up his mind to Medicine as if he did not have to think, as if he knew directly what he ought to do.

And when Wanatabe leaves for the war with China he puts Seisaku, the youngest and the latest comer, in charge of his dispensary. When the war is over and Wanatabe returns, he is amazed at the meticulous care that Seisaku has given to his accounts and, what is more, at the extraordinary amount of knowledge that the boy has acquired and stored during his absence. After a few questions, he decides that Seisaku is ready for the first examination at the Medical School at Tokyo.

With the aid of his teachers and contributions from friends, and impelled by his own limitless ambitions and tireless industry, he graduated after many curious experiences, in the Medical School at Tokyo. There he came in contact with the great Japanese masters of bacteriological research, Kitasato, Shiga and other superior minds, who encouraged his natural bent to the study of microscopy and bacteriology and pathology.

How he changes his name while a medical student from Seisaku to Hideyo is interesting. One day he picked up a novel by a popular Japanese author, which was creating a good deal of popular discussion. "The Life of a Contemporary Student." What is odd is that the hero has almost his own name,—Nonoguchi Seisaku. What is odder, is that the hero is also a medical student and, oddest of all, is, a student of the highest promise who, caught between women and drink, comes to a bad end. It is only a story, but Seisaku worries to think that he may go through life with a name tainted in a novel. After long meditations he decides to change his name from Seisaku to Hideyo. *Hide*,—the first name of one of

his teachers, (Kobayashi) meaning "great man," and Yo—"the world;" which put together,—"Hideyo,"—means a great man of the world. He consults his old teacher and mentor, Kobayashi-san who ultimately approves, and henceforth the name Seisaku, d'sappears and Hideyo Noguchi remains for the rest of his days.

In the meantime, through his own unaided efforts he had acquired a working knowledge of English, German and French. After his graduation an opportunity presented itself to accompany a Japanese government commission to study Bubonic pest in China and he profitted by this experience to improve his practical knowledge of medicine and to master the Chinese language, an acquisition which, when combined with his other linguistic abilities, gave him great advantages over his associates. In 1900, chance brought him in contact with Dr. Simon Flexner and Mr. Frederick Gay who stopped at Yokohama, where Noguchi was stationed as quarantine physician. His ambition had been, for years, to study and develop a scientific career in America, and this meeting served as the first link in the chain that bound him with the ties of a grateful affection to Dr. Flexner for the rest of his days.

In 1900, when he had just attained his twenty-fifth birthday, with only a few yen and his brain as his capital, he crossed the ocean and landed in Philadelphia, where through the patronage and kindness of Dr. Flexner and Dr. S. Weir Mitchell, he was given employment as a volunteer assistant in the University of Pennsylvania. There he began to work under Dr. Mitchell's direction, on the venom of snakes, especially the toxins and antitoxins of the American rattler, and soon attracted attention by the thoroughness and originality of his work. This earned him a Carnegie scholarship which he utilized with great profit for a year of study in the Serologic Institute of Copenhagen, under Professor Masden, later to be his life long friend.

Thus began his American career which was to continue uninterruptedly in the ascendant for the remaining twenty-seven years of his life. At the Rockefeller Institute in New York he rapidly rose to celebrity as an original and prolific investigator in bacteriology, serology and immunology. Before he had attained the early maturity of his manhood he had reached the summit of scientific achievement. He continued to rise and his fame was world-wide, with honors showered upon him by the learned societies of all countries. He had apparently reached the zenith of his career when he was stricken and died in his fifty-second year, on May 21, 1929, at Accra, British West Africa, a victim of Yellow Fever—a disease which he had relentlessly pursued and striven to conquer with all the science, the energy and the weapons at his command.

This is brief, is the skeleton outline of the extraordinary life of the Japanese savant, which has served as the foundation for Gustav Eckstein's intensely dramatic biography—a biography, which he has invested with a compelling interest and fascination that is all absorbing and unyielding, from the beginning to the end of the book.

* * *

The prospective reader must not expect to find here a scientific or technical treatise on Noguchi's discoveries and methods, or even a bibliographic record of his work. To do justice to this phase of the subject it would require not another book, but a large space in a library to hold the Bulletins of the Carnegie Institute in Washington and the whole series of volumes of the Journal of Experimental Medicine, the organ of the Rockefeller Institute, which, since 1902, was the chief repository of his publications. In this, are contained innumerable monographs and papers which, from the date of the foundation, were of sufficient importance to command the attention of his fellow scientists throughout the world.

Each of Noguchi's scientific achievements, and they were legion, beginning with his earlier work on the toxins and antitoxins of venemous snakes (1901-1904) and ending with his unfinished studies on the specific bacteria of trachoma, so laboriously pursued in the Indian reservations, of this country (1926-1928), and which were published after his death—would do honor to as many experts. These achievements are not overlooked, or is their scientific importance minimized by his all searching biographer, but the scientific side of the man is made far more interesting by the telling of how Noguchi worked in his creative moments—while elaborating his ideas and by the part that his discoveries played in the drama of his life. Each one of his most important discoveries furnishes material for reflections, episodes and anecdotes, all of them very diverting and many of them quite amusing. In this way we follow the scientist and the man with all his human attributes, as he moves and thinks and works in his laboratory and in his home, where the work continues for the twenty-four hours without knowing when the night is ended and the day begun. He had been told in his childhood that Napoleon only needed three hours for sleep, but he decided that he could do even with less. Often when he was working on a specially important problem he would be seized with a frenzy for work and remained for days and nights in his laboratory, appearing at home only for short intervals to reassure his wife.

The discovery of the treponema pallida, by Schaudinn, the germ of syphilis, in 1905, roused in him a passionate interest in this organism and in the whole spirochetal family, an interest which had been kindled in his boyhood when he had a view of a spirocheta, the spirillum of relapsing fever, in the microscope of Wanatabe, the surgeon of Wakamatsu, when working for him as a boy apprentice in his office. After 1905, Noguchi soon became the leading authority on the spirochete and by differentiating the various species which are closely related morphologically to the treponema of syphilis, and discovered other species which contributed very materially to the differential diagnosis of the disease itself. He added to the usefulness of the Wassermann test by simplyfying it and by further developing (1910) his luetin skin reaction. He was the first to make pure cultures of the Treponema of syphilis and again, in this way, he simplified the identification of the parasite and made it easier to inoculate in pure cultures upon the experimental animals, the monkey and the rabbit. Following this, came his discovery of the syphilitic nature of general paresis of the insane and of locomotor ataxia (1911-1913) a discovery which not only revolutionized the etiological concept of these diseases, but their mode of treatment. Alongside of this work he experimented successfully with the virus of rabies, of vaccinia and of herpes, of infantile paralysis, and with the germ of Rocky Mountain spotted fever and added vastly to the knowledge of these diseases. Later, he traveled to Peru where he studied the Oroya fever of the Andes and the fearful Verruga disease of that country, and there determined, after months of patient and laborious experimentation, that these diseases were caused by one and the same organism which he identified for the first time, as the Bartonella baccilliformis. These and many more achievements which we need not mention, sufficiently attest his unparalleled industry and scientific productiveness.

In 1917, he was profoundly prostrated by an attack of typhoid fever from which he barely escaped with his life. He was still an invalid when he was invited by General Gorgas to head a mixed American and Latin American Commission to investigate the causes of Yellow Fever, where it was still prevailing endemically in Ecuador, Peru, Brazil and Mexico. By that time the truth of the mosquito theory of yellow fever transmission, so long upheld by Car-

los Finlay and triumphantly demonstrated in Cuba (1901) by the epochal labors of Walter Reed, Carroll, Lazear and Agramonte of the United States Army Board, had already asserted its supremacy over yellow fever wherever the mosquito could be excluded, eradicated or controlled. Under the leadership of Gorgas, or by adopting his methods, it had been stamped out in Cuba, the Panama Canal, Louisiana and the Southern United States, the ports of Mexico, Brazil and other countries in which the same anti-mosquito principles had been applied. But it was plainer every day, that with increasing travel and with relaxing vigilance old foci would flare up after they were believed extinct. In 1918, the prevention and control of yellow fever epidemics was no longer a theory but a fact wherever mosquito eradication could be efficiently carried out. But the discovery of its essential cause with a view to its prevention in the exposed individual, and its cure after it had developed, was the problem facing Noguchi when he was summoned to Ecuador and Peru to further investigate the disease from this view point. He lost no time in preparing for the expedition under the auspices of the Rockefeller Health Board, and was on the field at Guayaquil, in 1918. Gorgas believed that when the cause of Yellow Fever would be found it would prove to be an organism very like the germ of infectious jaundice (Weil's disease), and Schaudinn, the discoverer of the spirocheta of syphilis, predicted that a spirocheta would one day prove to be the cause of yellow fever. Noguchi's long and exhaustive study of the spirochetae, in connection with his study of the treponema of syphilis, had prepared him specially well for this task. He had already introduced the name Leptospira (*lepto*, slender, *spira*, spiral), to designate the specific spirocheta of Weil's disease which he had previously investigated and differentiated in many human and rat strains. In Guayaquil, he was soon able to isolate and cultivate a leptospira from the blood and organs of yellow fever patients which was morphologically identical with that of Weil's infectious jaundice. After a prolonged series of experiments he was convinced that this organism was different from that of Weil's disease and that it was specific for yellow fever. He therefore named it the *leptospira icteroides* to distinguish it from the leptospira icterohemorrhagica. He also believed that mosquitos were infected by this germ and that they could transmit yellow fever to the guinea pig, as we then thought, a susceptible animal. Apparently the same organism was found in many of the yellow fever cases in Peru, Mexico, and later, in Bahia, Brazil. A vaccine prepared with Noguchi's Leptospira appears to have had some prophylactic effect on a body of non-immunized Ecuadorian troops.

The majority of the doctors who were associated with Noguchi agreed that he had found the specific cause of the disease and he was accorded a perfect triumph by the government and people in Ecuador on the eve of his departure from Guayaquil. But there were others, even some of his associates who were not willing to accept his discovery as a reality, and objections came especially from Cuba, Brazil, Mexico and the European possession in West Africa. He was beginning to feel the weight of these objections when news came from the Rockefeller Yellow Fever Commission in West Africa, that monkeys and not guinea pigs, were susceptible to yellow fever by direct inoculation even by direct inoculation even by mere epidermal friction as well as by a mosquito inoculation from human subjects, a hitherto unknown fact. But what was more disconcerting was that in the human subject as well as in the monkeys, Noguchi's leptospira, or a leptospira which presented the specific characters that he attributed to it—was absent! He then abandoned his work in New York and started for Accra in West Africa on what

was to be the last of his argonautic expeditions in quest of his deadly tropical foe.

* * *

"The gods (of Medicine) are frankly human, sharing in the weaknesses of mankind, yet not untouched with a halo of divine Romance." (Blakeney).

Throughout the book, the author lets Noguchi speak for himself, and it is amazing to what extent Eckstein has been able to convey to us the impression of his living personality. To do this he collected Noguchi's earliest correspondence with his Japanese teachers, friends and others before and after his advent to America. It is evident from this that Noguchi's letters must have been treasured by those who received them. Whenever these are lacking, Eckstein reproduces many of Noguchi's diary-like notes which appear to have been interspersed among many of his papers. In these, Noguchi gives free vent to his own thoughts and reflections upon all the subjects that at the time interested him. In addition, the author seems to have saturated himself so thoroughly with the early environment of his hero in Japan, and made himself so conversant with Japanese customs, traditions, mode of thought and expression, that at times one wonders how a foreign writer could have so thoroughly immersed himself in the Japanese atmosphere and yet preserve his occidental identity. The author has put an immense amount of labor in consulting and recording the observations and conversations of Noguchi with his intimate friends and others, who lived in close touch with him in his batchelor days and in his married life, but Eckstein's literary craftsmanship is too fine, too fluent, to allow this hard work to become apparent.

Some of the most interesting and delightful passages in the book are those which record Noguchi's habits, his moods and humors, his absentmindedness, his improvidence in regard to money matters and his eccentricities which were revealed in the intimate circle of his domestic life. Perhaps these were best told by his devoted wife, an American, Miss Mary Ruddis, whom he married in 1911, in his thirty-fifth year, and to whom he always lovingly refers to as "Maizie."

Here are a few samples: Before his marriage he occupied an apartment with a Japanese room-mate, Araki. Between the two they do the cooking. Sometimes it is necessary to watch the boiling rice. Araki does not like to, but Noguchi is always willing, brings his chair into the kitchen, puts the chair up to the gas range and props up his feet and continues to read. Suddenly he turns to Araki, "What is the smell?" He seems never to grasp that the smell could come from the boiling rice that he is watching. Araki snatches the cover of the boiler. Noguchi looks in. He shakes his head. "Yes, it's gone, we go out to eat."

"He goes to the restaurant. The waiters know his way and begin to serve him, never asking Noguchi what he wants, because Noguchi always wants the same thing. Noguchi does not say a word, not even in the beginning for politeness. Right away opens his book, puts it next to his plate and no one disturbs him. Yet Araki cannot help noticing how Noguchi eats, because that's peculiar. He pokes his fork toward his plate, has no idea what he is poking at, but whatever it is at the end of the fork, he puts in his mouth; and when he is using chop sticks, it is remarkable—to carry rice from a bowl you don't see."

After he married, he soon transformed his kitchen and dining table into a laboratory. To begin with, "Maizie" has always to be pushing the microscope and papers off one end of the table so as to be able to lay the cloth half way. Before the meal is over he is stepping around to the microscope, sharpens a pencil and spreads his yellow note paper around and lights a cigar. Presently Maizie has the table cleared, the dishes washed and is back in the dining room. She would rather "Hidey" were at his microscope than writing. If

he is writing when she talks, suddenly he will thrown down his pencil "I can't write." Then she has to be still. But if he is at the microscope, she reads and he listens and it is astonishing how well he remembers everything that happens in those old tales."

"Plain that there is little leisure in this married life. 'Hidey' is always at that Institute. How he loves that place, and he has not enough with working there, but must bring it home with him and is filling the kitchen with it. That kitchen is a sight. He takes pictures of germs and develops the pictures and slops water over everything. Maizie complains. He answers that she must come and see. 'Oh! it is lovely, Maizie, it is lovely.' "

At the Institute he is a different person; there his individuality is all submerged in his work. He does not indulge in any fancies or laxities of action or speech. There he is all in his technics, there he is a "flat wall." As one there, who sees him well, says, "a flat oriental wall."

The following incident is perhaps as typical of Noguchi's home life while working on an important problem, as any in the book.

At the time when he was searching for the spirocheta pallida in the brain of insane paretics, a characteristic incident occurs. He arrives, after a hard day's work, from the Institute with a batch of 200 slides which he has stained and prepared for inspection at home that night. He is tired with the grind of weeks of continuous work and feels the need of diversion. After supper he plays chess, his favorite recreation, with his neighbor, Hori, until past midnight. The game exhilerates him and he feels invigorated. His wife has long since retired and calls him to bed. The night is cool and refreshing and he is wide awake. The silence is conducive to the best work. It is now past one o'clock and he decides to look at his slides. He has been examining a batch of 200 freshly stained slides every night for the past week, but has not yet been able to find the spirochete, which he is confident, nevertheless, is there. He has examined the first hundred slides, has entered on the second hundred, presently he has examined the one hundred and fiftieth, the hundred and ninety-ninth: Nothing! Then he examines the two hundredth—the last for the night. He looks it over carefully like the others; back and forth, back and forth—ah! they are there, and in the two hundredth slide! Who would believe it! They are there in numbers. He calls, "Mazie, I think I've got them." He lights a cigar, he is terribly excited. He looks again. "Yes, I've got them!" There is no possibility of mistake. He had been looking for the spirochetes as minute rolled up bodies, but there they are, really full sized spirochetes, and he has missed them in the other slides because their thread-like bodies were intimately blended and camouflaged among the brain dendrites. In the week that followed, it was fully established that the spirochete of syphilis was firmly entrenched in the brain of insane paralytics, and that general paresis was in reality a syphilitic disease. A wonderful, reverberating fact!

Several stories are told of his reckless improvidence. Noguchi had no more idea of thrift or the value of money than a child. He showed this very early in his career, when he spent the 300 yen that his friend Chinaki had given him, with much personal sacrifice, to pay his passage to America. Every bit of this was spent on a great farewell party given to his friends the very night before sailing! Thanks to the same indulgent friend, his passage was paid; but this time, on the steerage. On arrival in San Francisco, he writes to this friend: "At my departure you showed me kindness, like sea and mountain, and I say thanks ten thousand times. I wait every inch and moment to hear from you . . . please remember me to all who have eaten out of the same kettle. With bent neck." (signed).

In regard to his thoughtlessness about money matters, Dr. Kligler who was associated with him in the yellow fever expeditions to Peru and Ecuador, writes that "he had assumed the impossible task of keeping Noguchi's accounts straight for him. They never balanced. He never could say at the end of the day what he did with the money he received in the morning. He just put it into his pocket and handed it out again. I am not sure that on several occasions he did not hand out five dollar bills instead of ones. At the end I gave up trying. I gave him small sums, paid for him when I was about and let it go at that."

Here is a quotation that shows that whatever his other weaknesses, his little vanities, he did not allow flattery to cloud his clear judgment about himself. Someone in Japan had written his biography in very eulogistic terms. "It is a bad book. No man is perfect like that book, and no man would want to be perfect like that book. That is not a human being. Life does not go on in a straight line like that. It goes up and down. It is only in the story that it does not go up and down."

And so we go on to the end of the book, reading page after page with increasing fascination until we come to the end and we feel that we have not only read the book, but Noguchi himself. We seem to have lived with him, we have heard him talk and think. We are familiar with his habits, his frailties, his mercurial temperament, his soaring and ever unsatisfied ambitions, his joys and his sorrows and his extreme sensitiveness to all sorts of impressions and suggestions that affect his personality.

Throughout all this extraordinary portraiture, we recognize the exotic, psychic and physical orientalism that is inseparable from Noguchi's individuality. He is a bundle of contradictions. On the one hand, primitive, emotional, self-indulgent and as wayward as a child, in his purely human relations. On the other, tremendously disciplined, self-restrained and completely oblivious to the demands of the flesh, when he is at work—sublimated in his laboratory in the pursuit of his task.

When one of his Japanese friends in referring to him mentions the word "genius" he loses his temper. "What! It is *hard work* that is genius. To work three, four, five times harder than anyone else—that is genius."

And who can doubt after reading this prodigious recital of his dynamic life that Noguchi was the incarnation of the Master Word—Work!

Ah, yes! "The colossal energy which gave him the ability to work for weeks without sleep when the fire of accomplishment burned in his brain. A tremendous passion for research combined with an infinite patience and persistence in the accomplishment of his ends," and, what is more, the capacity to devise means for the attainment of his purpose that were not common to other men. That is genius!

* * *

"O think not of his errors now; remember
His greatness, . . . all the noble exploits of his life,
And let them, like an Angel's arm unseen,
Arrest the lifted sword."

(Coleridge: Death of Wallenstein.)

To the veterans of the profession and to the people of New Orleans and the South who can still vividly recall the terrors of yellow fever and the perennial anxiety in which they lived until 1905, when the great sanitary victory won in the summer of that eventful year, relieved them of that frightful bondage — the tragedy of Noguchi's death appeals with special pathos and significance. The sad part of the story lies in the fact that Noguchi believed with absolute conviction that he had unravelled the mystery that surrounds the cause of yellow fever and that the scientific world, trusting largely to his proven genius, had shared this belief with him. But as in so many instances, which so deplorably abound in the mournful epic of this disease, the exulting

victory of today is but the prelude of the defeat and despair of tomorrow, and so it was with Noguchi and the leptospira which he believed secreted the toxins of yellow fever. These he thought he had trained and tamed like the venomous snakes which he had handled so fearlessly in earlier years—and made yield their poison to make the protective antidote against their own bite. But he, like his favorite hero, Napoleon, whose life had been one long paean of victory—now had to face his Waterloo. The evidence which had been steadily accumulating in the course of the years that followed the glamorous triumph at Guayaquil, was coming from all sides to disprove the protective value of his vaccines and antitoxins, and even the existence of his specific leptospira was denied.

That he, the master mind and peerless investigator should have been deceived and his discovery of the leptospira icteroides, as the specific germ of yellow fever, should prove to be only the ghost of a great hope, was a thought that terribly depressed and humiliated him. Was his leptospira destined to follow in the funereal train of the micrococcus xanthogenicus of Freire, the Peronospora lutea of Carmona, the specific enteric bacillus of Gibier, the micrococcus tretagenus of Finlay, the bacillus icteroides of Sanerelli, and of so many other great delusions that dolefully testify to the fallacy of the scientific imagination and that now remain in history only as the dead ashes of long extinguished camp fires!—that was the question which was, no doubt, more than galling to this supersensitive man.

But what no doubt affected him more deeply was the unswerving loyalty of the great philanthropic foundation which regarded him as one of its foremost exponents, and legitimately prided itself in his great achievements. The Rockefeller Institute held fast to its faith in his genius, and, despite the great sum of money that had been spent fruitlessly to distribute his vaccines and serums all over the world,—never deserted him.

Though depressed, ill (he had a cardiac lesions and was a confirmed diabetic) and careworn,—he was not defeated. Spurred by intolerable doubts and by the supreme desire to vindicate himself in the eyes of the scientific world, he braced himself to meet the storm of antagonism that was gathering about him, and decided—despite the appeals and remonstrances of his wife and friends—to embark at once for Africa, fully determined to pluck victory out of seeming defeat. He left New York for Accra (Gold Coast, British West Africa), on October 27, 1927. Arrived at Accra, he surveyed the field which furnished the clinical material and a large menagerie of Rhesus and other monkeys which had been lavishly provided for his experimental researches. There he pursued his quest with the same indomitable will and sleepless energy that characterized all his scientific undertakings. Sometime after he had settled in his African laboratory, he wrote to his friends in America: "My work is so revolutionary, that it is going to upset all our old ideas of yellow fever." He thought he had something new. Another organism—which was fatal to the animals in which it was injected—black vomit in their stomachs and great destruction of kidney and liver." But he was cautious, non-communicative, keeping his counsel to himself. Even Alexander Young, the able chief of the British station for yellow fever research at Accra, who was devoted to him, did not know what was in Noguchi's mind. It is evident that Noguchi had lost all hope in his spirocheta. He was so convinced that African yellow fever was not the disease that he had dealt with in South America, that he appeared to have scarcely looked for it. "Whether the South American disease is also not Weil's infectious jaundice, but a third disease, who can tell? He soliloquized: 'Not likely that he went altogether wrong, yet he may, and if he did, and he finds the right now, what's

the difference. But suppose he does not find the right now?" "Sometimes in the dawn, after a whole night spent in feverish poring over his microscope and his cultures, he looks gray and sick, and in the snap shots taken of him by enterprising visitors, he makes no effort to hide his crippled hand. Lets it lie there staring. It proves how tired or how indifferent, or possibly even how done, how through with the last vanities." Once he is speaking passionately and ends: "This is the sunset for Noguchi and perhaps a bad one." There is sadness about the last days in Accra. An all pervading gloom seems to saturate the place. Adrian Stokes,[1] the brilliant Irish pathologist, had died while working on yellow fever, in his laboratory at Lagos, a few months before Noguchi's arrival. There are many things that forebode evil. Death stalked about the place. Still Noguchi works, works with his slides, his cultures, his monkeys and his little squad of improvised African assistants. "Where he gets that energy is harder and harder to see. It is always daylight now when he leaves his laboratory. Sometimes he burns through the whole night every light in the place, makes everyone wonder, makes this or that one think, how strange. Remarkable that, even in the midst of this intense and all-consuming task, Noguchi should be thinking of other problems. His unfinished work on trachoma made him think of a trip to Egypt to gather more material for his studies before returning home. Finally, he began to say in letters that he believed he has discovered the cause of the yellow fever of Africa, "but what he sees must be guardedly interpreted, this time he must not be wrong. But what's left to do, right or wrong, can be done under the more deliberate conditions of his own laboratory in New York." There is no absolute reason for prolonging his stay in Africa and he decides to return to New York and sets the third week in May (1928) for his sailing. Whether he had discovered a path or struck a new light that would dispel the prevailing darkness, no one can tell. For his secret, if any, died with him.

Noguchi, who had been immune to the yellow fever of South America, was now stricken with the yellow fever of Africa; he knew his disease and realized its gravity. "If he is convinced that he has found the cause of yellow fever, what he knows of that cause is locked essentially in his own head. There are notes, sealed tubes, and Young[2] has followed step for step, but the power to push through to the meaning is perhaps buried in himself. If, on the contrary, he is not convinced it might be easier to die than go back and face his friends." "It is the end and I want to die." Quotes his biographer. He died on the tenth day of his illness, on May 21, the time set for his departure for America. He was buried at sea and the waves that roll over the shores of the Dark Continent yield their secret no more willingly than the immutable Sphinx which is still there, on that African coast, grimly challenging with its riddle the best will and intelligence of civilized man.

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(1) Dr. Adrian Stokes, at one time professor of Pathology at Guy's Hospital, London, was appointed chief of the Rockefeller commission to West Africa and died of yellow fever at Lagos on September 19, 1927, age 41 years. He, and his associates Bauer and Hudson, discovered the transmisability of yellow fever to monkeys and it is probable that he contracted the infection in his experimental work.

(2) Dr. William Alexander Young, head of the British Medical Research Institute at Accra, contracted yellow fever and died in the prime of life, age 39 years, a few days after Noguchi's remains had been buried at sea. It was reported that Young incurred the fatal infection when making a post-mortem examination of Noguchi (Lancet, June 16, 1928).

NEW ORLEANS
Medical and Surgical Journal

Established 1844

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

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News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE CORONARY ARTERY IN HEALTH AND DISEASE.

Under this caption Herrick,* whose reputation as an internist is wide-spread throughout this country, but whose special claim to fame rests upon his accurate original description of coronary occlusion, a condition which is now so generally recognized everywhere as one of the most important causes of sudden death, discusses in a part of his presentation the mechanism of production of heart pain. It is pointed out that there are two main theories advanced as to the causation of the anginal syndrome. The one ably supported by such outstanding men as Allbutt and Wenckebach, as well as Vaquez, holds the pain is due to a stretching of the diseased wall of the aorta. The older theory contends that pain is due to spasm or disease of the coronary artery or to perversion of function of the muscle supplied by that artery. This theory is the older of the two, but after Allbutt's pronunciations was largely discarded. Now the pendulum is swinging the other way, and an increasing number of physicians are becoming adherents of the coronary artery theory. In substantiation of this statement, Herrick details some twelve arguments which certainly would suggest to the clinical observer at least that heart pain is due to coronary dysfunction. Most of these arguments are old ones, as for example, the fact that nitrites dilate the coronary and relieve pain; that angina is rare in syphilis, although aortic disease is extremely common; that angina is infrequently found in auricular fibrillation; that angina is rare in "chronic myocarditis"; and that adrenalin causes anginal attacks in old people but not in younger individuals in whom there is no presumable coronary lesion. Some of the more advanced theories that would substantiate the coronary idea include the fact that the hypoglycemia of insulin causes anginal pain due to low sugar content of the arterial blood; moreover, anemia may produce anginal pain as a result of insufficient oxygen to the heart muscles when under stress; anginal pain may occur in hyperthyroidism; the heart muscles again being poorly supplied with blood through the damaged artery, when an increased amount of blood is necessary on account of a heightened metabolism; electrocardiographic evidence is very much more suggestive of a muscular degeneration as a result of coronary disease than to disease of the aorta; and certain vasomotor phenomena as Raynaud's disease are associated in a suggestive way with angina.

*Herrick, James B., Am. Heart Jour., 6:585, 1931.

Herrick very justly states that the ultimate decision as to the causation of anginal pain has not been reached, and that only through the cooperation of the pathologist and practitioner of medicine, the experimental physiologist and the student of electro-cardiography will the enigma be solved.

A COMBINED MEETING.

The suggestion has been received from various sources that the Annual Meeting of the Louisiana State Medical Society should be held at the same time as the meeting of the American Medical Association, when this latter organization meets the first or second week in May in New Orleans. This idea has been advanced by men not only in the City of New Orleans, but by physicians elsewhere in the State, who maintain and contend that it might be impossible to hold a satisfactory State Meeting immediately proceeding the National Meeting. Their contention is that the one would detract from the other. The two meetings come together within a very few weeks of each other; at best not more than three weeks will separate the two. On account of the present economic depression, it is rather an imposition on a man to ask him to give up his practice at two distinct periods of time close together, and to be obliged to defray the necessary expense incident to travel and to sojourn in a strange city.

Not only the New Orleans doctors but those of the State should be anxious to do all that they can to make the meeting of the American Medical Association an outstanding one. If our forces are divided it may well make both meetings unsatisfactory from the point of view of attendance by our State physicians.

Antagonists of this suggestion hold that Lake Charles physicians have already extended a cordial invitation to meet in their lovely city, and that this invitation having been accepted by the State Association it is in honor bound to go there. Everyone knows that Lake Charles will extend a great deal of energy and time making this meeting a success. It is bound to be so from the standpoint of the entertainment that will be provided and for the hospitality that will be extended, but will the Lake Charles doctors want a meeting without the usual attendance? It is also contended that if a regular scientific program is not presented that the state organization will lose its entity. This argument may be met with the statement that the House of Delegates of the State Society could meet the day before the meeting of the American Medical Association, transact their business, and then adjourn to atend the scientific sessions of the American Medical Association. The non-office holding physicians of the State will be able to select subjects that will interest them from the variegated program of the American Medical Association, and can attend the scientific sessions just as if they were the scientific sessions of the Louisiana State Medical Society.

The Louisiana State Medical Society has not been asked to meet next year in New Orleans. If there was a wide spread sentiment for such a meeting, we feel quite confident that such an invitation would be extended. Physicians of Lake Charles have been so cordial in their invitation, that in return the only equitable, just, fair arrangement would be for the State Society to hold its meeting in this community in 1933.

There seems to be so much sentiment in favor of this suggested course of holding the two meetings concurrently, that it is suggested that the various District and Parish Societies discuss among themselves the plan. If there is a brisk sentiment in favor of holding the State Meeting at the same time as the National, it probably could be arranged. If there is no such general sentiment in favor of this proposition, it need not be entertained any further.

HIDEYO NOGUCHI.

The lives of all men who have attained great eminence in any line of endeavor possess a human interest which attaches as much to their personalities as to their mode of achievement. In dealing with the great men of Medicine, this human interest is legitimately increased by our professional curiosity to know more of their personal characteristics, their habits and their methods in the attainment of their desired ends. From this point of view the life of Hideyo Noguchi, the great Japanese savant, which has been so vividly portrayed by Dr. Eckstein,* and which is at present so justly attracting the attention of the reading public, is a fine example of a form of biographic literature which appeals with special interest to the medical profesion.

But quite apart from Noguchi's vast scientific achievements and the romantic background in which they are set in this extraordinary biography, the tragedy of Noguchi's death appeals to us as Southern doctors with special sympathy as an episode in the baleful history of yellow fever, a disease which is inseparable from the most poignant and unforgetable experiences of the people of Louisiana and of the South.

For these reasons the Journal has deviated from its established rules in regard to the limited space accorded to book reviews, by publishing Dr. Matas' comprehensive summary and sympathetic review of Dr. Eckstein's vividly dramatic biography of Noguchi, in the confident belief that his contribution will be welcomed by our readers as a timely and recreative variation from the more technical literature of this publication.

*In response to the possible query as to who this Dr. Eckstein is, we quote the information which Dr. Eckstein furnished his publishers when asked for an autobiographical sketch.

"Born, practiced dentistry, studied medicine, taught physiology, learned not much, read two or three men, learned a little, came to know two or three women, learned a good deal, made friends with two rats, learned prodigiously, wrote about the rats, continued to write."

HOSPITAL STAFF TRANSACTIONS

VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL, STAFF MEETING.

July 10, 1931.

Abstract: Microcephalus—Dr. G. C. Jarratt.

Patient—Freddie S., colored, male, aged 4 years.

Chief Complaint: Does not talk, walk, or sit alone. Very greedy.

Present Illness: Mother states that child seemed normal in every respect up until he was three months of age, at which time he began to have generalized convulsive seizures that lasted from two to twenty minutes and would have as many as eight to ten seizures in 24 hours. This continued until child was about one year of age; there have been none since then. Child has never stood alone. When child is held upright, will stand on toes and not the soles of the feet. Began to pull self up at two years of age. Never has been alble to sit alone without support. Says only a few words.

Mother also states that patient has a ravenous appetite and seems "very greedy." When playing with other children is always biting or scratching them. At the age of eight months an attending physician informed the mother that the infant's anterior fontanelle was closed. She does not know whether it was closed earlier than that or not.

Past History: Chicken pox at one year of age; no other contagious diseases; no illnesses simulating encephalitis or meningitis. Pleurisy at three months of age but not following any illness.

Birth History: A nine months child, weight not known; cephalic delivery with instruments; no convulsions or cyanosis. Nursed well during the first 24 hours; did not cry excessively.

Family History: Mother living and well; father living and well (white). One seven months premature child died at one month of age. Three other children living and well (same father). No tuberculosis contact.

Examination: Poorly developed and nourished and small child for four years of age. Length 34 inches (normal 38 to 41½ inches at four years of age). Child lying on examination table, tossing body about, flexing feet on abdomen and muttering to self.

Head showed flat occiput, depressed in fronto-parietal region; high vertex. Anterior and posterior fontanelles closed. Circumference 17½ inches (normal at four years, 19¾ to 20¼ inches). Nose prominent; mucoid discharge. Eyes: Pupils reacted to light; internal strabismus of left eye. Reached for objects and grasped them with good co-ordination. Ears: Canals small but deep; both tympanic membranes normal. Mouth: 20 milk teeth; very high palate; tonsils small, innocent. Neck: No glands enlarged. Chest: Rachitic rosary, Harrison's groove. Lungs: No rales, bronchophophony, or impaired resonance. Heart: No murmurs, arrythmias or enlargement.

Abdomen: Spleen and liver not palpated; along ascending and descending colon could feel fecal concretions. Abdominal muscles markedly relaxed.

Extremities: The fingers were short and stubby; the foot is in equino-posterier position and cannot flex on legs due to shortening of tendo-achilles.

Genitals: Phimosis, both testes in scrotum. Skin: No rash.

Central Nervous System: Knee jerks present and normal; Babinski and Brudzinski negative; muscles very flabby but no spasticity. Pupils normal. Child very evidently mentally unbalanced.

Laboratory: Wassermann, Kline and Young, and Kahn tests negative. Urine shows slightest possible trace of albumin; slight trace of indican; rare abnormal red blood globule and rare pus cell.

Diagnosis: Microcephalic idiot.

Discussion: The features in this case that make the diagnosis evident are: (1) Cranial circumference below normal; (2) Flattened occiput with recession of fronto-parietal areas; (3) Dwarfism; (4) Pointed vertex; (5) High arched palate; (6) Prominent nose and the very low grade of mentality with inability to walk, sit alone, or talk.

This defective development has been explained by Virchow's theory of premature ossification of the cranial bones, but according to Sachs, is probably due to atrophic changes, which are the result of hemorrhage or inflammation affecting the brain and its membranes.

Pathology: Brushfield and Wyatt* report the pathology of the brains at autopsy of 10 cases with evidence of microcephalus as follows: "In every case the meninges revealed signs of chronic inflammatory changes. The dura was thickened and sometimes adherent to pia-arachnoid and a degree of external hydrocephalus was a common feature. The lepto-meninges were thickened and opaque with a gelatinous exudate extending over the cerebral hemispherese around the sylvian fissures to the base.

"The brains corresponded to the shape of the cranium. The under-development of the cerebral hemisphere was a striking feature of most of the brains. The hypoplasia was most marked in the parietal-occiptal bases. The cerebellum was never affected to the degree of the cerebrum."

Conclusions drawn from the examination of these brains was that the underlying causes were at work before birth.

*Brushfield and Wyatt: British Journal of Children's Diseases, March, 1927.

VICKSBURG HOSPITAL STAFF MEETING.

June 11, 1931.

Abstract: Ectopic Gestation—Dr. I. C. Knox.

Patient—Mrs. R. T. R., white, female, married, aged 33 years. Admitted to hospital June 6, 1931.

Family History: Negative except that mother had cancer of the cervix.

Personal History: Patient is a housekeeper by occupation; has been married five years. One child living and well. General health has been excellent.

Past History: No serious past illness except appendicitis, 11 years ago with peritonitis; appendectomy performed at that time. Tonsillectomy performed at that time. Tonsillectomy, 7 years ago. Patient at the present time has varicose veins of the legs.

Present Illness: Patient was diagnosed as being pregnant in April, 1931. Condition was not remarkable except that the periods returned at the regular time each month. The flow was scant and lasted only one day. On April 28, the patient was washing dishes. She developed a sudden, severe pain in the lower right abdomen. Pain was knife-like and radiated up the right side. Patient began to hemorrhage from the vagina. The flow was profuse and had a very foul odor. Patient became pale and fainted and was put to bed and given large doses of morphine to keep her quiet. Patient soon became free of pain, but the flow continued. It was scant in amount and exceedingly foul. Patient at this time was in Chicago. One week later, the patient had a similar attack with the exception that the hemorrhage was not profuse. The case was diagnosed as abscessed tubes. She had another attack a few days later. Patient was brought to Vicksburg from Chicago Saturday night, June 6, and was operated on Sunday, June 7.

Examination: Examination confined to the abdomen. The upper abdomen was entirely negative. The lower abdomen showed a mass in the right iliac fossa extending to McBurney's point. The abdomen was very rigid and a mass could be

palpated in the right side. Vaginal examination revealed a cervix that was flowing slightly, the flow being of bloody mucus discharge and not profuse. The cervix was somewhat enlarged and rather soft. There was no laceration of the cervix from former pregnancy. The uterus appeared rather fixed and there was slight bulging of the cul-de-sac. The left side of the abdomen was essentially negative.

Diagnosis: Ruptured right tubal pregnancy.

Operation: Removal of the right tube and hematocele with at least one pint of clotted blood.

Progress Notes: Patient taken to surgery eight o'clock June 7, 1931. Returned from surgery at 8:40 A. M. Temperature 98°; respiration 32. A fairly comfortable day. Some nausea. June 8, 1931 temperature 99°; respiration 20. Patient had some slight nausea and some gas pains. This was relieved by enema. June 9, 1931. Some improvement, pulse, respiration and temperature normal. Some nourishment being taken. June 10, 1931, abdomen flat. Temperature normal. No complaints and patient making a nice recovery.

Discussion: By ectopic pregnancy or gestation we mean those conditions in which the growth of the impregnated ovum takes place elsewhere than in the uterine cavity. There are several locations where it may take place, namely, in the tube, in the ovary or in the peritoneum. By far the greater number of cases of ectopic pregnancy take place in the tube and usually in the outer half. When the ovum is expelled from the corpus luteum of the ovary it is guided by the fimbriae of the tube into the canal and by the ciliary processes it is waved along into the uterus.

This passage when unheeded requires several days and it is during this process of travel that impregnation usually takes place and under normal conditions the fertilized egg continues its course until it reaches the uterine cavity where it becomes implanted or embedded in the endometrium and proceeds to develop into full pregnancy at that point. It is assumed and believed by most gynecologists that there is some impediment to the passage of the ovum that causes it to become implanted or embedded in the tube or ovary or peritoneum as the case may be. For instance, the frequency with which pregnancy is found in tubes that have been damaged by some inflammatory process which is the result of puerperal infection or gonorrhea, or such conditions as appendicitis with adhesions to the end of the tube, leads us to believe that these are factors in ectopic gestation. However, there are many instances where this anatomic or pathologic condition is not found and it is a bit of speculation on the part of anyone to say just what causes the impregnation of the tube or ovary. Sipple bases this theory of causation from observations that the ovum may enter the tube on the side opposite to the ovary from which it has been discharge. Freund thinks that the condition may result from the unusual length and convolutions of the tube. However, it may be, it is a known fact that an ovum cannot live for any great length of time in the tube. The death of the embryo is due undoubtedly to the poor soil in which the ovum has been fertilized and inserted. Therefore, it is a rare thing for the fetus to live more than two or three months. The average time in my experience is about two and one-half months. The direct cause of the death of the fetus is the rupture of the surrounding capsule. If the bleeding is free and unconfined, of course, there is great danger of death to the mother, but fortunately in the majority of cases this is impeded and we have a hematocele forming which protects the life of the mother.

It is hard to determine when we have a tubal pregnancy before there is a rupture. Frequently, a patient will think that she is pregnant and will have the usual symptoms of pregnancy for the first month or so. There is frequently a little drainage or slight menstruation, as she terms it, which is irregular and may continue for about a week, then disappear and return. The symptoms of rupture are very definite. One of the first symptoms that the patient notices is a sharp, lancinating pain in the side. This may cause so much shock that the patient will frequently fall to the floor. Pallor, small rapid pulse and air hunger follow. There is no fever, but there is marked rigidity of the abdomen and the patient will become extremely nervous. Very soon after, there is almost always some uterine bleeding. Rarely ever is this profuse. On palpation, there is rigidity and tenderness and frequently a mass is felt which is either on the right or left side, more frequently on the right.

Vaginal examination will reveal a mass on either side or probably in the cul-de-sac and by frequent examination we find the mass getting larger. However, I do not think that with the classical symptoms of sharp, lancinating pains in the side with shock, rapid pulse, air hunger and with a history of irregularity of menstruation that we should wait, but the patient should be taken to surgery and the trouble corrected as soon as possible. It matters not when the diagnosis is made, whether before rupture, at the time of rupture or after rupture, the course to pursue is surgery with removal of the tube and hemorrhage controlled in that way.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

Resolution adopted at a meeting of the Orleans Parish Medical Society, July 13, 1931.

In the death of Dr. Robert Clyde Lynch the Orleans Parish Medical Society has lost one of its most distinguished members. The sudden crushing out of this valuable life in an automobile accident represents an overwhelming blow and irreparable loss to our profession and to the community. His great skill, remarkable dexterity, and sound surgical judgment made him a leader in devising new procedures in his field of endeavor. His clearness of thinking and precision in demonstration were those of a great teacher. His firmness combined with tact led others to look to him as an administrator, organizer, and leader. His quiet manner and his fine qualities of character bound many to him by the ties of friendship. Above all, he was a great doctor, with sympathy and gentleness for suffering, with utter devotion to duty.

It is fitting, therefore, that this Society should record this in its minutes as an indication of its sorrow and bereavement, and that a copy should be sent to Dr. Lynch's family as a mark of the high regard in which he was held by colleagues and friends.

Resolution adopted at a meeting of the Orleans Parish Medical Society, July 13, 1931.

Whereas the Orleans Parish Medical Society has sustained a great loss in the death of Dr. B. A. Ledbetter;

Be it resolved that a page of the minutes be devoted to his memory. Dr. Ledbetter was for many years a prominent figure in the medical profession of the city and the state. He had served this society as its President, and was later president of the Louisiana State Medical Society. Through a long period of years he was on the staff of the Charity Hospital, and he had twice served as a member of the Louisiana State Board of Health. In these capacities he was active and forceful, and bent every effort to forward the interests of the profession and to promote the public health and welfare. His cheery disposition brought him the attachment and confidence of a large circle of friends.

Be it further resolved that this society tender to Dr. Ledbetter's family this expression of its appreciation of Dr. Ledbetter's active service, and of its sorrow at his death.

UNITED STATES PUBLIC HEALTH SERVICE.

Asst. Surgeon Charles W. Folsom. Relieved from duty at New Orleans Quarantine Station, and assigned to duty at Marine Hospital, New Orleans, La. June 30, 1931.

Asst. Surgeon J. G. Pasternak. Relieved from duty at New Orleans, La., on or about July 6, and assigned to duty at National Institute of Health, Washington. June 30, 1931.

Assistant Pharmacist F. L. Gibson. Relieved from duty at Carville, La., on or about July 10, and assigned to duty at Marine Hospital, Boston, Mass. June 16, 1931.

Chief Pharmacist D. J. Gleason. Relieved from duty at Marine Hospital, Boston, Mass., on July 10, and assigned to duty at Marine Hospital, Carville, La. June 16, 1931.

A. A. Surgeon C. P. Munday. Relieved from duty at Carville, La., on June 30 and assigned to duty at Relief Station, Port Arthur, Texas. June 16, 1931.

A. A. Surgeon Harry H. East. Relieved from duty at Port Arthur, Texas, on June 30, 1931, and assigned to duty at Marine Hospital, Carville, La. June 16, 1931.

Asst. Surgeon Fred P. Burow. Relieved from duty at Marine Hospital, New Orleans, La., on July 6, and assigned to duty at Quarantine Station, New Orleans, La. July 1, 1931.

Asst. Surgeon D. W. Patrick. Relieved from duty at Marine Hospital, New Orleans, La., on July 6, and asigned to duty at Quarantine Station, New Orleans, La. July 1, 1931.

Asst. Surgeon Noka B. Hon. Directed to proceed from New Orleans, La., to Hot Springs, Ark., for special temporary duty at Public Health Service Clinic at that place. July 2, 1931.

Asst. Surgeon George J. Van Dyke. Relieved from duty at Marine Hospital, New Orleans, La., on July 6, and assigned to duty at Marine Hospital, Cleveland, Ohio. July 2, 1931.

Dr. Leon J. Menville, Editor of Radiology, was elected Vice Chairman of the Section of Radiology at the recent meeting of the American Medical Association. Dr. Menville was also recently appointed to serve on a sub committee on Electrical Definitations, American Standard Association, sponsored by the American Institute of Electrical Engineers.

Dr. John H. Musser has been appointed to the Medical Council of the U. S. Veterans' Bureau.

ANNOUNCEMENT.

TENTH ANNUAL SESSION

American Congress of Physical Therapy

October 5, 6, 7, 8, 1931

Hotel Fontenelle Oma[1] a, Nebraska.

The tenth anniversary session of the American Congress of Physical Therapy will be held October 5, 6, 7, 8, 1931 at the Hotel Fontenelle, Omaha, Nebraska. The Congress has always endeavored to present a program of high quality, and while each year has seen a steady improvement, this year's program is of such a standard that it will be difficult to surpass in the future. Appreciating the desirability of clinics and clinical demonstrations, the program committee has set aside the mornings for these purposes. It will be the first time that the society will have available ample clinical material for medical and surgical services. The cooperation of the University of Nebraska, College of Medicine, and the Creighton University School of Medicine has made this possible.

For preliminary program and other information write to the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

HEALTH OF NEW ORLEANS.

The Division of Vital Statistics of the United States Department of Commerce reported for the week ending June 30, 1931, that there was a total of 126 deaths equally divided between the white and colored, and in the corresponding week of 1930, 150 deaths. The death rate for the week was 14.1. The infant mortality for this week was 33 white and 140 colored. For the week ending June 27, 1931, the total deaths were 126, of which 77 were white and 49 colored. The infant mortality had decreased to 58 white and 65 colored deaths under one year per 1,000 live births. The total number of deaths in the corresponding week in 1930 was 190. The index for the week ending July 4, 1931 shows a total mortality of 175, 105 white and 70 colored as contrasted with 129 total deaths in the corresponding week of 1930. Infant mortality had increased to white 61 and colored 116. For the week ending July 11, 1931 the total deaths had decreased to 159, 90 white and 69 colored. The infant mortality rate was white 99 and colored 147.

INFECTIOUS DISEASES IN LOUISIANA.

From the office of the United States Public Health Service, in collaboration with Dr. J. A. O'Hara, the morbidity weekly report for the 25 weeks ending June 20, 1931 shows the greatest number of cases reported under the heading of pulmonary tuberculosis, 54, and syphilis 54. Among the other prominent infectious diseases is diphtheria with 25 cases, twenty-three cases of gonorrhea, 38 cases of pellagra, and 17 cases of typhoid fever. These cases of typhoid fever were reported from 11 parishes. There was a decrease in the number of typhoid fever cases reported in comparison with the corresponding week of 1930 when 27 cases were reported. There were 9 reported cases of smallpox, four in the parish of Orleans. There was one reported case of undulant fever in Lafayette parish.

For the week ending June 27, 1931, pellagra led the list with 67 cases. Syphilis accounted for 55 cases as contrasted with 120 cases in the corresponding week of 1930. Typhoid fever had increased to 34, being reported from 16 parishes with the greatest number, 8, in Evangeline parish. There were 2 reported cases of poliomyelitis and a reported case of undulant fever, this time in Iberville Parish. Smallpox had decreased to 2 cases, one in Orleans Parish and one in East Baton Rouge Parish.

For the week ending July 4, 1931 there were 89 cases of pneumonia reported as contrasted with 21 cases in the corresponding week of 1930. Typhoid fever cases had decreased to 25 cases in 15 parishes. There was only one case of epidemic cerebrospinal meningitis in Orleans Parish and one case of poliomyelitis in Ouachita parish. There were 56 cases of pellegra reported. For the week ending July 11, 1931 there were 91 cases of pellegra reported, said to be the result of a survey covering several parishes for several months. Pneumonia showed the next largest number with 72 reported cases. There were 47 typhoid fever cases reported. Two cases of undulant fever from Washington parish, and one case of tularemia from the same parish were reported. Only 9 cases of smallpox were reported in this week and only 18 cases of syphilis as contrasted with 55 for the previous week.

CORRESPONDENCE.

MEDICAL ORGANIZATION.

In the last issue of the Journal, the President of our State Medical Society expressed himself as desiring a closer contact with the officers of the component associations, saying that he would like very much to get their views, as well as that of every legally qualified physician of the State regarding organization, medical economics and in fact anything relating to the welfare of our profession. Hence this from me, as President of the Sixth District Medical Society. When Dr. Barrow was made our President, I felt that a man had

been chosen, who had sufficient strength of character and that he would bring honor to the medical profession, as well as advancement to organized medicine. His article in the last issue proved I was correct; it shows that he is not afraid of opinion, irrespective of traditions, when he feels he is right. It is a pity this article could not be broadcasted through all medical Journals and especially through the Journal of the A. M. A. My views of economics, organized medicine and traditions are in hearty accord with this. The economic side of the life of today cannot be compared to that of many years ago, advancement in everything is such that we must meet the situation boldly and frankly. The financial side of the life of the physician must be improved in some way and manner to meet the needs as they are today and to accomplish this without being censured the physicians in their organizations must do away with certain traditions hung on to us by medical ethics. Our ethics are too antiquated and unless they are revised, so as to bring them up to the high standards of the medical profession and to meet the necessities of the physician to enable him to live in fair comfort, something is bound to happen. Organized medicine in its true meaning is the only hope and salvation for us and let us live up to its every purpose as brave and honest men. Do not let any of us use it for purely personal and selfish purposes. Let advancement and high standards be our watch words and above all let us stand by each other in organized medicine as a solid phalanx. We are in an age of specialism in the medical profession; let us live up to the meaning of that word to its fullest and let us "eunuchize" all traitors and hybrid specialists. We should know that it is our duty to refer all patients, not belonging to our specialty, when coming to us, to a brother specialist in a different branch where the patient belongs. But I ask "is this done?" I answer a thousand times, "No!" And such acts are wrong to the very fundamentals of organized medicine. Let us clean our house along these lines and keep it clean if possible. This has no reference to and bears no reflection on the general practitioners; they are more loyal to their brother specialists by much, than are the specialists towards each other and vice versa. I consider that the most charitable and honorable as a whole of all medical men are the general practitioners.

Tradition is a wonderful word yet many traditions in all professions and occupations, except those of the medical profession have been put aside by the advancement of science, inventions, and discoveries. Why should this not also be done judiciously in our medical ethics as suggested by our able President.

Traditions, customs and habits of civilization have almost the same meaning in many instances. Up to twenty-five years ago it was traditional for old Dobbins and the two-wheel sulky to be handed down, when the family doctor died, to his successor who came to replace him. This tradition or custom has rightfully passed on, yet many traditions respected by the medical profession are almost as ludicrous. In our ethics we yet have many traditions that are beautiful and will always be honored but in many ways our code can be vastly improved to meet the modern times. We should get together and stand by our President along these lines so that the bold and honest stand he has taken will be carried on by others. I am afraid that there are few of us who would criticise adversely an editorial in the A. M. A. Journal yet our President, feeling that he was right, did just this thing and too much commendation cannot be given him for the stand he has taken—it is due him.

It is a great pity that the medical fraternity in many of our small and thinly populated parishes are too small in numbers to organize a society and Dr. Barrow suggests, the District Society should seem the most suitable gateway for them to enter organized medicine. But before this is done these district societies must be put on a business standard. Again that word economics comes in like Banquo's Ghost, it won't down. I have just gotten the reins as President of the Sixth District Medical Society and our Secretary informs me that the member of this Society pay only when they attend the meetings and even this is not done in some instances. Before my term of office is over I do hope to have this entirely changed so that it will be as business-like as is our state society, which we know could not be improved upon under the management of Dr. Talbot. Our physicians must be improved as business men in some way and learn the meaning of the word budget in finances.

Respectfully,

F. F. Young, M., D.

President Sixth District Medical Society, Covington, Louisiana.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

L. S. Lippincott, Editor

Jacob S. Ullman, Associate Editor *D. W. Jones, Associate Editor*

THAT WE MAY KNOW EACH OTHER BETTER.

Dr. James Milton Acker, Jr., Aberdeen, the President-Elect of the Mississippi State Medical Association, was born in 1887 and has been practicing medicine 21 years. Graduating from high school in Aberdeen, he had three years of literary study and two years of medicine at the University of Mississippi, and was graduated in medicine from the Tulane University of Louisiana, School of Medicine in 1910. He was licensed to practice medicine by the Mississippi State Board of Health the same year and has spent his life in Aberdeen with the exception of two years in the army and time spent in post-graduate work. He entered the army as a first lieutenant and was discharged as a major after serving most of the time as regimental surgeon of the 309th Field Artillery, 78th Division. He spent four months in 1912 at the New York Polyclinic and had post-graduate study at Chicago and the Mayo Clinic in 1928. Dr. Acker has been Secretary of the Northeast Mississippi Thirteen County Medical Society for five years, is a member of the Mississippi State Medical Association and a fellow of the American Medical Association.

JAMES MILTON ACKER, JR., M. D.,
Aberdeen, Miss.
President-Elect, Mississippi State Medical Association.

PAPERS FOR PUBLICATION.

Dear Mr. Editor:

Had I not had the honor of meeting your distinguished co-worker Dr. J. S. Ullman, I would think he must be of Hibernian ancestry. In the July *Journal* he writes under the heading "Papers for Publication," and occupies rather more than half a page telling what papers should not be published.

Asked for advice how to write, a successful author once said: "Write about new things in an old way, old things in a new way, or new things in a new way. Never write about old things in an old way." The last sentence covers what Dr. Ullman has to say in his half page, and expresses it with much less waste of ink and space.

The *Journal* has recently been giving us, under the heading Hospital Staff Transactions, some extremely readable stuff: case reports. As Dr. Ullman suggests, there are such things as text books that are available to us all; but since no two patients are ever exactly alike, we have in the clinical case the "new thing," or at least the unrecorded things, that will enable us to write in one of the three permitted ways. Formerly such subjects appeared much more frequently on programs and in journals than they do today and their absence is a distinct loss. Why not try to revive them more generally?

E. F. Howard.

HISTORY OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION.

At the last meeting of the Mississippi State Medical Associationfi Dr. E. F. Howard, Vicksburg, was elected Historian. He is now hard at work in an effort to bring up to date the history of the Association published under his direction in 1910. In the interest of accuracy, items of history will be

published in these columns. Dr. Howard requests that every member of the Association go over these items carefully and suggest to him any additions and corrections that should be made. Co-operation on the part of the members of the Association will insure a dependable and interesting history to be published later in book form.

Add 1908:

Dr. W. H. Aikman, on behalf of the Adams County Medical Society, presented the Association with a gavel "composed of five pieces of wood held together by bands of silver; the bands at the ends being expanded to extend over the different pieces and on these expanded surfaces at one end is engraved the names of the places where the wood was grown or whence it came. At the other end, on the corresponding surfaces, are recorded events, names and dates that make these five places notable in local history. Beginning at the handle we have a piece of red cedar from "Windy-Hill Manor," where that adventurous character of American history, Aaron Burr, was concealed in 1807. Next a piece of white cedar from a large tree that grew on "The Briars," where Jefferson Davis was married February 26, 1845. Then a section of poplar from "Longwood," where Sergeant L. Prentiss was married on March 2, 1842, and where he died July 1, 1850. Next a piece of walnut from "Concord," where stood the residence of the last Spanish governor, Gayoso, this residence being built in 1789. The piece of hickory and the hickory handle grew on "Monmouth," the home of General John A. Quitman, a hero of the Mexican war and military governor of the City of Mexico, being made governor by General Scott in recognition of his valor in being the first to have his troops within that ancient citadel." (Transactions, 1908).

Add 1909:

This year marks the beginning of the defense bureau. Such work had been begun with considerable success by several State Associations and it was the opinion of Dr. J. W. Gray, the 1908-9 president, that such a feature would be of benefit in Mississippi. His advocacy of it was the first suggestion of the plan which, finally adopted in 1911, has become so important a part of our machinery.

As a matter of no small satisfaction was the opportunity to show appreciation of one of the martyrs to medical science. The organized profession of the country was raising a fund to purchase a home for the widow of Dr. James Carroll, whose death was directly attributable to an attack of yellow fever contracted voluntarily in the effort to demonstrate the transmission of the disease by mosquitoes. The Association appropriated one hundred and fifty dollars for this purpose, to which the individual members present at the meeting contributed an equal amount.

1911.—This defeat, however, but served to stimulate the Association to greater efforts. Dr. H. L. Sutherland of Rosedale initiated the attack with a paper on "The Duty of the State in the Conservation of Human Life and Energy," which was presented at the annual session and given to the public press. The various matters in which the Association had met defeat in the legislature were re-introduced and energetically pressed and the following year (1912) the legislative committee was able to report complete success with every measure introduced. The appropriation for the State Board of Health was increased from eight to twenty-five thousand dollars, a Bureau of Vital Statistics was created, and a law was passed providing that only graduates of recognized medical schools might apply for license to practice.

COUNTY EDITORS.

Dr. R. G. Grant of the North Mississippi Medical Society has made the following appointments to the Board of County Editors representing the counties of the North Mississippi Medical Society: Dr. A. H. Little, Oxford, Secretary, Chairman of the Board; Dr. Frank Ferrell, Ashland, Benton County; Dr. F. E. Linder, Taylor, Lafayette County; Dr. D. R. Moore, Byhalia, Marshall County; Dr. G. H. Wood, Batesville, Panola County; Dr. C. M. Murry, Ripley, Tippah County; Dr. H. P. Boswell, New Albany, Union County; Dr. G. A. Brown, Water Valley, Yalobusha County.

LOAN OF TRANSACTIONS.

June 24th.

Dear Mr. Editor:

The Historian wishes the loan of three volumes of TRANSACTIONS for the years 1895, 1898 and 1899. Perhaps if you will insert a request in the news column of the JOURNAL, some of the members will help him out. Only as a loan, to be returned promptly.

Very truly yours,

E. F. Howard.

PANOLA COUNTY.

Dr. Malcolm Arnold and wife of Sardis, are at home for a few weeks' visit to relatives and friends. Dr. Arnold has just graduated from Johns Hopkins and goes to his work in the Naval Hospital at Washington, D. C., the last of June.

G. H. Wood.

JOINT MEETING.

More than 200 North Mississippi physicians attended the regular quarterly meeting of the Northeast Mississippi Thirteen County Medical Society at Houlka, on June 22, with members of the North Mississippi Medical Society and high state officials as special guests. Dr. C. E. Boyd, president of the Northeast Mississippi Society, Dr. J. M. Acker, Jr., Secretary, and others in charge of the program, had declared the occasion "Houlka Day" in honor of one of the hospitable town's most distinguished citizens, Dr. William C. Walker, beloved member of the organization.

The ladies of Houlka served a bountiful picnic dinner to the doctors in a grove near the Baptist Church, the place of the quarterly meeting. Miss Moss Davis welcomed the doctors to Houlka.

The session as called to order by President Boyd. Rev. S. P. Andrews, pastor of the Houlka Baptist Church, pronounced the invocation. Dr. Z. A. Dorsey presented a paper on "Focal Infection." Discussion was opened by Drs. Pegram and Guinn. Dr. A. H. Little's paper, "Report of Allergic Cases," brought general discussion. Among the outstanding physicians on the program was Dr. Percy Toombs of Memphis. He discused, "Dystocia, With Special Reference to the Occiput Posterior." "Differential Diagnosis of Heart Murmurs in Children," was the subject of Dr. R. E. Priest's paper. The discussion was opened by Dr. Reed and Dr. Adams.

At the conclusion of the regular program Dr. John C. Culley, President of the Mississippi State Medical Association was presented. He paid his respects to Dr. William C. Walker in whose honor the meeting was held and a tribute to the late Rad Reed. Discussing the work of the State Medical Association, Dr. Culley pointed out that this body at its last meeting in Jackson had endorsed by resolutions the movement to secure funds from the State to maintain charity wards in community hospitals and privately owned hospitals in order to care for charity patients in their territory. No definite plan has yet been adopted by the Association but this will be left with a committee appointed by the President and composed of a member from each congressional district. The following will compose the committee: Dr. R. B. Caldwell, Baldwyn; Dr. V. B. Philpot, Houston; Dr. C. M. Speck, New Albany; Dr. E. R. Nobles, Rosedale; Dr J. W. D. Dicks, Natchez; Dr. J. P. Culpepper, Hattiesburg; Dr. M. L. Flint, Newton. The chairman of the committee is Dr. Felix J. Underwood, executive officer of the Mississippi State Board of Health.

Dr. Culley, in closing his address made an appeal to the members of the profession to forget factionalism and to work together for the restoration of the University of Mississippi to its former standing in the Southern Association of Colleges, thus assuring the continuation of the medical school at Ole Miss in its A-1 rating. He explained that the reason the medical school was not suspended but placed on probation was because of the board of trustees reinstating all the members of the medical faculty who had been previously removed, and the placing as dean of a man who was qualified to fill the office because of his understanding of medical education. Dr. P. L. Mull, dean of the Ole Miss Medical School, was then introduced. He spoke briefly of the work for the coming session.

The last speaker was Dr. Felix J. Underwood of the State Board of Health and President of the Southern Medical Association.

Among others attending the meeting were the president-elect of the State Medical Association, Dr. James M. Acker, Aberdeen; Ex-President G. S. Bryan, Amory; and Ex-President P. W. Rowland, Oxford. Dr. Underwood is also an ex-president of the State Association.

WEBSTER COUNTY.

Drs. W. H. Curry and J. H. Brown of Europa attended the Winona District Medical Society meeting at Lexington, July 6. Thirty physicians were present and a splendid program was rendered.

An invitation was extended to the Society to hold its next meeting in Europa.

W. H. Curry, County Editor.

YAZOO COUNTY.

I am sorry I mentioned corn in my June report for some unknown reason only two Yazoo doctors attended the last meeting of the Central Medical Society, Dr. Joe Roberts, Thornton, and your scribe. Dr. John Darrington attended the meeting of the State Board of Health recently of which he is a valuable member.

I hope to meet all Yazoo doctors in Vicksburg on the fourteenth.

C. M. Coker, County Editor.

PONTOTOC COUNTY.

Here goes from Pontotoc County Again:

Dr. C. D. Mitchell, Jackson, Superintendent of the State Hospital for the Insane, was a very pleasant visitor to our county on a recent visit to North Mississippi.

Dr. A. H. McGregor, Randolph, in the southwestern part of the county is very busy at this

time. Dr. J. D. Neel and the writer held a very interesting consultation with him recently.

Dr. Donaldson, Health Officer of this county, has been re-appointed for another two years. He is busy now with typhoid vaccinations and the like.

Pontotoc county was honored recently by a visit from Dr. R. N. Whitfield of the State Board of Health. During his stay in Pontotoc county, a Vital Statistics Associtaion was organized. The following doctors of the county were present: O. F. Carr, R. P. Donaldson, Z. A. Dorsey, J. D. Neel, J. H. Windham, J. W. Gillespie, J. W. Turner, and E. B. Burns.

E. B Burns, County Editor.

CLAIBORNE COUNTY.

We are glad to report that Dr. E. D. Barron, Pattison, is able to be out again, following an illness of several weeks.

Dr. D. M. Segrest, Lieutenant, United States Navy, who has been stationed at the Naval Hospital, Washington, D. C., is visiting his parents, Dr. and Mrs. R. A. Segrest, at Port Gibson.

At the recent meeting of the State Board of Health, Dr. W. N. Jenkins, Port Gibson, was reappointed health officer for Claiborne County.

W. N. Jenkins,
County Editor.

WINSTON COUNTY.

Dr. Bernard Hickman, son of Dr. W. W. Hickman, Louisville, recently took unto himself a bride, and has moved to our city as a partner of his father.

Dr. M. L. Montgomery recently camped for a week, not on a fishing outing, but while having his home remodeled. We seemed to have the sympathy of our friends but that did not eliminate the worries of trying to remain while the work was in progress.

The Winston County Medical Fraternity meets in regular session the second Tuesday night of each month.

Dr. W. W. Parks of our city has procured the services of Dr. R. L. Donald of Jackson as a partner. He and his good lady having moved into our city, there they will reside, and Dr. Donald will do general practice.

We are having distressingly good health through this section, but we appreciate health if it does cause more idleness among us.

M. L. Montgomery,
County Editor.

MADISON COUNTY.

Dr. John B. Howell of Canton was operated upon at the Jackson Infirmary in June. He is at home now where he is convalescing rapidly.

Dr. and Mrs. John Melvin of Camden have returned from Baltimore where Mrs. Melvin went for treatment. Mrs. Melvin is much improved in health.

Miss Stevens, nurse at the King's Daughters' Hospital of Canton, is enjoying a vacation at home.

A. P. Dufrey,
County Editor.

GRENADA COUNTY.

Affairs medical in Grenada county are in normal condition. Our doctors are well and at work as opportunity offers. No marriages, births or deaths in their families except my own. We sustained a sore bereavement in the death of our son-in-law, Mr. Frank B. Hays, at the Methodist Hospital in Memphis on June 11. He was indeed a fine son.

Our local society—Winona District—had a most delightful meeting at Lexington on July 6. A full program and free discussion was enjoyed by 30 or more members. The doctors, druggists, and citizens generally made us welcome and proved themselves to be royal hosts. A splendid, well-served luncheon added to the enjoyment of the "inner man." A "red letter" day for us. Drs. J. K. Avent, R. A. Clanton and T. J. Brown represented Grenada County.

T. J. Brown,
County Editor.

COMMITTEE ON COMMUNITY HOSPITAL LEGISLATION.

At a meeting of the Committee on Community Hospital Legislation of the Mississippi State Medical Association at Jackson, on July 7, the following action was taken:

"In keeping with a resolution, a copy of which is herewith enclosed, adopted by the Mississippi State Medical Association in annual meeting which assembled at Jackson in May, 1931, pertaining to Legislation regarding the distribution of charity funds to community hospitals in counties where no state hospitals exist, we, the Committee on Community Hospital Legislation, appointed by the President of the Mississippi State Medical Association, wish to submit to all candidates for governor, lieutenant-governor, and the legislature, the following:

"In view of the fact that the Mississippi State Medical Association has adopted by unanimous vote the enclosed resolution it is to you we are appealing for legislation to carry out this program.

May we ask that you give this important matter your careful consideration and, if it meets with your approval, carry this idea to your people. Also, we should appreciate information as to your attitude on this important legislation."

Felix J. Underwood, M. D., Jackson, Chairman.
V. B. Philpot, M. D., Houston, Secretary and Representative District Four.
R. B. Caldwell, M. D., Baldwyn, District One.
C. M. Speck, M. D., New Albany, District Two.
E. R. Nobles, M. D., Rosedale, District Three.
M. L. Flynt, M. D., Newton, District Five.
J. P. Culpepper, M. D., Hattiesburg, District Six.
J. W. D. Dicks, M. D., Natchez, District Seven.
R. W. Smith, M. D., Canton, District Eight.

EAST MISSISSIPPI MEDICAL SOCIETY.

The regular meeting of the East Mississippi Medical Society was held in the Benwalt Hotel, Philadelphia, Thursday, June 18, at 3 P. M., with 27 members and 13 guests present. The following program was rendered:

1. The Present Understanding and Limitations of the Term Eczema—Dr. R. W. Hall, Jackson.
   Discussed by Dr. E. C. Mitchell, Memphis.

2. The Patient—Mrs. Iva W. Lovell, Superintendent of Nurses, Meridian Sanitarium.

3. Symptoms of Colon Disfunction—Dr. H. G. Rudner, Memphis.
   Discussed by Drs. E. C. Mitchell, H. C. Ricks and J. S. Hickman.

4. Motion Pictures Showing Activities of a County Health Department as Operated in Mississippi—Dr. H. C. Ricks, Jackson.

Immediately following the meeting, through the courtesy of the Neshoba County doctors, a banquet was served to the members and guests. Dr. A. L. Majure served as toastmaster. The speakers were Drs. E. C. Mitchell, R. W. Hall, H. G. Rudner and H. C. Ricks.

T. L. Bennett, Secretary.

WARREN COUNTY.

Dr. M. H. Bell is enjoying a much needed vacation. He will remain out of his office until August 1.

Dr. and Mrs. W. G. Weston, formerly of Louisville, Ky., have moved to Vicksburg. Dr. Weston is connected with the Vicksburg Clinic, his practice being limited to Internal Medicine.

Dr. and Mrs. George M. Street attended the recent meeting of the American Medical Association.

Dr. Guy P. Sanderson has entered private practice. He retains his position on the Staff of the Vicksburg Hospital and was elected President at its recent meeting.

Dr. J. A. K. Birchett, Jr., recently enjoyed spending a few days at the Mayo Clinic.

Dr. and Mrs. Guy C. Jarratt have returned from their vacation, which they spent in Oklahoma City.

Dr. W. E. Akin has accepted a position as resident physician at the Vicksburg Hospital.

Drs. Walter Johnston and Gurney Clark received their degrees at Vanderbilt University during June. Dr. Johnston has entered private practice with his father, Dr. S. W. Johnston. Dr. Clark has secured an internship at the Strong Memorial Hospital of Rochester, N. Y.; he plans to specialize in internal medicine.

Dr. Sol Kaufman spent a few days in Vicksburg during his vacation. He has returned to Charity Hospital of New Orleans, La., for a Senior Internship.

Dr. Nathan Lewis has returned to Vicksburg, after having received special training in surgery at the Missouri Pacific Hospital, St. Louis, Mo. He will spend the next two weeks at the Reserve Officers' Training Camp, after which he plans to enter private practice.

Dr. Edley H. Jones has been notified of his election as a Fellow of the American College of Surgeons. The degree will be conferred at the annual convocation in October.

Three Vicksburg boys, Alston Callahan, John Whitney and Benson Martin have completed their second year of medicine. Callahan is spending the summer at the Vicksburg Hospital and Martin at the Vicksburg Infirmary.

Edley H. Jones,
County Editor.

VICKSBURG HOSPITAL.

The regular monthly staff meeting of the Vicksburg Hospital was held on June 11 at 7 P. M. and was called to order by the President, Dr. W. H. Parsons, with the following present: Drs. I. C. Knox, G. P. Sanderson, H. W. Weimar, F. M. Smith, E. H. Jones, and W. E. Akin.

After the reading of the minutes of the two preceding meetings, and analysis of the work of the hospital for the past month, including roent-

gen-ray, laboratory, medical and surgical reports, made and the reports freely discussed. There was free discussion of the twenty-five questions for hospital standardization as outlined by the American College of Surgeons.

The scientific program included a case report and discussion of "Ectopic Gestation," lead by Dr. I. C. Knox.

Election of officers was held and the following elected to serve until the meeting in February, 1932: President, Dr. G. P. Sanderson; vice-president, Dr. W. H. Parsons; secretary, Dr. W. E. Akin.

Refreshments were served and the meeting adjourned.

PIKE COUNTY.

Born to Dr. and Mrs. H. C. Hatcher, a son, on June 17, 1931.

Dr. L. W. Brock was forced to stay in bed a few days from an infected hand. Glad to say he is at work again.

Dr. T. B. Abney has located at McComb.

Dr. T. Paul Haney of the Commonwealth Health Unit is with us and will soon be able to show us just how it should be done. We are with you, doc.

L. J. Rutledge,
County Editor.

VICKSBURG SANITARIUM.

The regular monthly meeting of the staff of the Vicksburg Sanitarium was held July 10.

After the reading of the minutes of the last meeting and the reception of reports from the records department and analysis of the work of the hospital, the following special case reports were made:

1. Microcephalus—Dr. G. C. Jarratt.

2. Fracture of the Shaft of the Radius with Poor Apposition and Delayed Union, Treated by Open Reduction and Intramedullary Bone Peg—Dr. A. Street.

3. Postoperative Phlebitis of the Lower Extremities—Dr. J. A. K. Birchett, Jr.

4. Some Interesting Chest Conditions—Dr. L. J. Clark.

5. Ovarian Cyst—Donald S. Hall.

Dr. G. M. Street reported on the recent meeting of the American Medical Association at Philadelphia.

A number of interesting roentgen-ray studies were presented and discussed.

Closed with a lunch.

NESHOBA COUNTY.

The Neshoba County Medical Fraternity met on its regular date in June. We had a very enthusiastic little meeting and enjoyed the mingling together of the dentists, pharmacists and medical men. We had the following papers and discussions:

Trench Mouth—Dr. E. P. Tolbert.

Discussed by Drs. Porter Jordan, R. H. Gully, W. R. Hand, and J. S. Hickman.

Tularemia—Dr. J. S. Hickman.

Discussed by Dr. W. R. Rand.

Dinner was served at Dobb's Hotel.

The East Mississippi Medical Society met at the Ben Walt Hotel, Philadelphia, on June 17. We had a very instructive meeting, after which the Neshoba County doctors gave a six o'clock dinner with about 25 present. The President of the society, Dr. A. L. Majure, acted as toastmaster. Dr. Majure is making us a wonderful president.

J. S. Hickman,
County Editor.

SHARKEY COUNTY.

Miss Ethel Goodman, daughter of Dr. H. S. Goodman, Cary, is attending summer school at the University of Virginia.

Drs. H. S. Goodman and W. C. Pool, Cary, attended the June medical meeting in Monroe.

Dr. H. B. Goodman, son of Dr. H. S. Goodman, Cary, has just completed his internship at the Charity Hospital, New Orleans, and is now on the staff of the Charity Hospital, Vicksburg.

Dr. and Mrs. A. K. Barrier, Rolling Fork, visited relatives in Louisiana recently.

The Sharkey County Health Unit held a preschool clinic at the Cary high school, Cary, June 30, where quite a number of children were examined. Drs. L. C. Davis, Greenville, Edley H. Jones, Vicksburg, and H. S. Goodman and W. C. Pool, Cary, gave their services.

Dr. and Mrs. M. J. Few, Rolling Fork, spent July 4th, with relatives in Drew.

W. C. Pool,
County Editor.

ATTALA COUNTY.

Dr. Lamar Bailey and Dr. C. A. Pender, Kosciusko, attended the Winona District Medical Society which convened at Lexington on July 6. The meeting and luncheon were enjoyed by all present. After the meeting, the Community Hospital was inspected and found to be modern in every detail. Any community is to be congratulated on securing an institution of this kind.

The next meeting of the Winona District Medical Society will be held at either Europa or Kosciusko, about October 1.

C. A. Pender,
County Editor.

Acknowledgment is made of the receipt of a post card from Dr. A. G. Payne, Greenville, dated July 7, at Rochester, Minnesota. Dr. Payne writes: "It does one good to get out and see how other people fare, live and do things. Came up through Arkansas, Missouri, Iowa, and Minnesota. Crops all fine, but depression?."

PIKE COUNTY MEDICAL SOCIETY.

The Pike County Medical Society met at the Dew Drop Inn, Summit, July 2, with the following members present: Drs. W. C. Hart, B. J. Hewitt, T. W. Hewitt, H. C. Hatcher, G. W. Robertson, M. D. Ratcliff, L. J. Rutledge, C. W. Stewart, E. M. Givens, L. L. Greer, W. F. Cotton, and R. H. Brumfield.

Visitors present included Drs. T. Paul Haney, T. B. Abney, H. K. Butler, D. P. Butler, and I. D. Boyett.

Drs. Haney and Abney were elected to membership in the society.

The scientific program included:

Scraped Apple Treatment of Bloody Diarrheas in Infancy—Dr. L. J. Rutledge.

Prophylaxis in Pregnancy—Dr. E. M. Givens.

Robert H. Brumfield, Secretary.

PONTOTOC COUNTY.

The North East Mississippi Thirteen County Medical Society met at Houlka, June 16, with the North Mississippi Medical Society as guest. We had about 200 doctors present.

Drs. W. C. Walker and J. M. Hood saw that every one present had a good time and we were all sorry when the time came to leave.

The doctors who attended from Pontotoc County included: E. G. Abernethy, Algoma; E. B. Burns, Ecru; R. P. Donaldson, Pontotoc; A. P. Dunavant, Pontotoc; Z. A. Dorsey, Troy, and W. H. Reid, Toccopola.

Dr. O. F. Carr has the sincere sympathy of his many friends in the loss of his mother, Mrs. O. C. Carr, who died at the ripe old age of 81 on Junt 16.

A Pontotoc County Vital Statistics Association was organized here June 30 on the occasion of the visit of Dr. R. N. Whitfield of the Mississippi State Board of Health.

Dr. O. F. Carr and wife, Pontotoc, are visiting their daughter, Mrs. William May, Jr., at Lumbardy.

The meeting of the staff of the Houston Hospital, Houston, was held on July 2.

The subject for discussion, "Bronchography," was presented by Dr. J. R. Williams. All present participated in the discussion. These meetings are always well attended by doctors from several adjoining counties. They meet twice a month.

R. P. Donaldson,
County Editor.

CHOCTAW COUNTY.

We have seven physicians in Choctaw County. None are boys, still I would not call any of them old—not to their faces anyway. All have families except two; however, I have seen older men than they are assume this responsibility.

We are badly in need of charity wards in our North Mississippi Hospitals and are anxious for that time to come.

J. James Ackerman,
County Editor.

MONROE COUNTY.

June 16 was a memorable day; for on that day the Thirteen County Society celebrated "Houlka" day according to program announcement. But it was stated on the floor by one of the speakers that it should have been designated as "Walker" day in honor of Dr. W. C. Walker, on whose personal invitation the society visited Houlka.

Houlka is just a small village situated in Chickasaw County, built on a spur of the Pontotoc Ridge, but those who have never visited Houlka have yet to learn the full meaning of hospitality. It seems that Dr. Walker traveled to Holly Springs on the day the North Mississippi Medical Society held its spring meeting, expressly to invite that society to visit with us on June 16. This invitation was accepted—so twenty counties were in attendance. Besides, the news had been passed on that *all* doctors and their friends would be welcome. About 250 doctors were there.

The program was good—the day was fine—the feast that was spread for us by Houlka folks surpassed any thing I have ever seen. They had prepared for one thousand. The food was deliciously cooked and served. Nothing that could be thought of was omitted.

But as bountiful and fine as the food was, even these qualities could not match the welcome and hospitality that you sensed as soon as you entered the limits of this wonderful little Southern village. The best and greatest feature of the occasion was the very evident fact that it was the spontaneous expression of love and esteem of a splendid people for a splendid man. While Dr. Walker is not a very old man, he is on the shady slope of life's hill. He has spent his life among these people, he has served them well with no thought of his own aggrandizement. These people appreciate him, they prize him, they love him, both for what he is and what he has done for them. Dr. Walker is a cultured Southern gentlemen and had he devoted his life to letters he might have ranked with the best of present day literati. Had he chosen the platform he might have held the public spellbound with his eloquence; for he is, in the fullest sense, an orator. But who would evchange the place that he holds in the hearts of his people for the passing glory of such triumphs as might have come to him had he devoted his time and talents to these other lines of endeavor. How fine it would be if each of us, when the sunset days shall come, might know that we had deserved and served and won and kept the love of our people as Dr. Walker has the love of the people at Houlka.

The poet, from whom Dr. Walker quoted on that day, in a vein of cynicism, asks the question, "What is friendship and what is love?" Let another of the old English poets answer, when he says. "Love rules the court, the camp, the grove, all men below and saints above; for love is heaven and heaven is love." There never was a day like "Houlka" day—there may never be another. But I am sure, no one who was there will ever regret or forget that he *was* there.

G. S. Bryan,
County Editor.

STILL THEY OCCUR.

Report of the Bureau of Communicable Diseases of the Mississippi State Board of Health shows for the month of May, typhoid fever, 45; smallpox, 184; diphtheria, 33. All of these could have been prevented by the proper prophylactic immunizations. Let's free Mississippi from these three diseases this year.

HOMOCHITTO VALLEY MEDICAL SOCIETY.

The third regularly quarterly meeting of the Homochitto Valley Medical Society was held at Bude, on July 9, with 18 members and two guests present. After a most delightful luncheon, the meeting was called to order by Dr. Lucien S. Gaudet, President, and the following program presented:

1. Report of Dr. J. W. D. Dicks, Councillor, 8th District.
2. Report from Vice-President E. E. Benoist, Adams County.
3. Report from Vice-President W. R. Brumfield, Amite County.
4. Report from Vice-President C. E. Mullins, Franklin County.
5. Report from Vice-President R. B. Harper, Jefferson County.
6. Report from Vice-President J. W. Brandon, Wilkinson County.
7. Reports of Delegates who attended the Mississippi State Medical Association Meeting for 1931.
8. Reports of Committees.
9. Clinical cases:
   (a) Hematuria Following Traumatic Injury Over the Left Kidney Region—Dr. C. A. Everette.
   (b) Intestinal Obstruction Caused by a Bolus of Round Worms in the Ileum—Dr. C. A. Everette.
10. Paper. "Some Notes on Gallbladder Disease"—Dr. E. E. Benoist. Discussion opened by Dr. R. D. Sessions.
11. Adjournment.

W. K. Stowers, Secretary.

CENTRAL MEDICAL SOCIETY.

The joint meeting of the Central Medical Society with the Issaquena-Sharkey-Warren Counties Medical Society at Vicksburg on July 14, was the last meeting of the Central Medical Society before the summer vacation. There will be no meeting of the society in August.

W. L. Hughes, Secretary.

DR. J. H. RUSH.

Whereas, an all-wise Providence, the Great Physicians of all our humanity, having power to heal all sickness and infirmities alike of body and soul, but whose ways the finite mind cannot grasp,

in His wisdom has removed from the walks of men our beloved friend and former co-worker, Dr. J. Hack Rush, of Meridian, a successful practitioner of the dental profession, embracing the best years of his wonderful career; a man of unusual skill in dentistry, possessing a dexterity later used with telling effect in the broader field of surgery; a man of rare charm and magnetism of personality, whose face ever mirror and radiated the fine soul within, being an humble believer in the Fatherhood of God and the Brotherhood of man; a man who in the broader field of medicine and surgery, thought entering it much later in life than is the usual order, carved a name and a place for himself, impossible to appraise in terms of sordid wealth, leaving his kinsfolk, especially his two sons, already eminent physicians and surgeons, a heritage more valuable than fine gold or monument of stone and marble; a man who compressed into the forty years of his professional career a monumental amount of extraordinary service to humanity, and though almost a constant sufferer the latter years of his life, smiled to his last conscious moments. Therefore, in recognition of the above enumerated charming traits of character, and his outstanding contributions to the dental profession and later to medicine and surgery. Be it

Resolved, That the Mississippi Dental Association, in annual assembly in Gulfport, June 4, 1931, does hereby take cognizance of the true worth and attainments of our departed friend and co-worker, pledging ourselves ever to strive to emulate his virtues and fine traits of character as well as his tireless energy and devoted service to suffering humanity.

Resolved, That the Association do hereby extend to his wife, Mrs. Nellie Hunnicutt Rush, to his brother, Dr. G. A. Rush, an honored member with us, and former partner in dental practice of the lamented Dr. J. Hack Rush; to his sons, Drs. J. Lowry Rush, and Leslie V. Rush, and other relatives, our sincere sympathy and condolence in their hour of bereavement.

Resolved, That a copy of these resolutions be conveyed to the above named members of the bereaved family, and that a copy be filed with the Department of Archives and History of the Association.

Necrology Committee

Dr. A. B. Kelly, Yazoo City, Miss.
Dr. A. G. Tillman, Sr., Vicksburg, Miss.
Dr. L. B. Price, Corinth, Miss.
Dr. J. F. Brunson, Meridian, Miss.

Dr. Rush was a graduate dentist and practiced dentistry before he studied medicine.

OLD TRANSACTIONS.

The Historian of the Mississippi State Medical Association has a rather complete set of the transactions "since the beginning of time." This collection is probably the most complete now extant. However, the following volumes are missing: 1874, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1892, 1893, 1901.

It is rather important to the State Association that there should be some where at least one complete set of its transactions. Members of the Association are requested to look through their old books and if any of the above volumes are found, to consider very seriously presenting them to the collection of the Historian. Such volumes will be well cared for and reference may be made to them should any one desire. Your co-operation in this is urged.

COMMITTEES.

Dr. John C. Culley, President of the Mississippi State Medical Association, has announced the appointment of the following committees for the year:

Committee on Public Policy and Legislation—One year, F. J. Underwood, Jackson; two years, Henry Boswell, Sanatorium; three years, W. H. Anderson, Booneville.

Committee on Publication (Ex-Officio)—L. S. Lippincott, Vicksburg; J. S. Ullman, Natchez; D. W. Jones, Jackson.

Committee on Scientific Work—T. M. Dye, Clarksdale; Gilruth Darrington, Yazoo City; B. S. Guyton, Oxford.

Committee on Constitution and By-Laws—One year, S. W. Johnston, Vicksburg; two years, J. S. Ullman, Natchez; three years, W. H. Frizell, Brookhaven.

Committee on Community Hospitals—District 1, R. B. Caldwell, Baldwyn; District 2, C. M. Speck, New Albany; District 3, E. R. Nobles, Rosedale; District 4, V. B. Philpot, Houston; District 5, M. L. Flynt, Newton; District 6, J. P. Culpepper, Hattiesburg; Distict 7, J. W. D. Dicks, Natchez; District 8, R. W. Smith, Canton.

Chairmen of Sections.

The President has appointed the following Chairmen of Sections: Surgery, W. H. Anderson, Booneville; Medicine, G. W. F. Rembert, Jackson; Eye, Ear, Nose and Throat, Edley H. Jones, Vicksburg; Hygiene and Public Health, F. M. Smith, Vicksburg; Radiology, George E. Adkins, Jackson.

JOINT MEETING.

Fifty-eight members and guests attended the joint meeting of the Central Medical Society and the Issaquena-Sharkey-Warren Counties Medical

Society held at the Vicksburg Country Club on June 14. After a short address of welcome by President J. B. Benton of the Issaquena-Sharkey-Warren Counties Society, the following scientific program by the members of the Central Medical Society was presented:

1. Acute Osteomyelitis—Dr. J. W. Barksdale, Jackson.

Discussed by Drs. O. H. Swayze, Yazoo City; S. H. McLean, Jackson; Julius Crisler, Jackson; John Darrington, Yazoo City; W. H. Parsons, Vicksburg, and G. M. Street, Vicksburg. Dr. Barksdale closed.

2. The Use of Spinal Anesthesia in Obstetrics—Dr. L. W. Long, Jackson.

Discussed by Drs. Joe Roberts, Thornton; G. M. Street, Vicksburg; J. W. Barksdale, Jackson; John Darrington, Yazoo City; Gilruth Darrington, Yazoo City; I. C. Knox, Vicksburg; S. H. McLean, Jackson; P. S. Herring, Vicksburg, and E. F. Howard, Vicksburg. Dr. Long closed.

3. The Incidence of Malignancy—Dr. A. G. Wilde, Jackson.

Discussed by Drs. Julius Crisler, Jackson; A. Street, Vicksburg; G. M. Street, Vicksburg. Dr. Wilde closed.

Dr. E. F. Howard, Vicksburg, offered the following resolution:

Be it resolved, That the President appoint a committee of three—one from each of the counties composing this society—to investigate the activities of all agencies practicing medicine in the three counties, Issaquena, Sharkey, and Warren, that are financed either in whole or in part from the public funds; in an effort to determine if, and to what extent, these activities are infringing on the rights and just privileges of private physicians; and

Be it further resolved, That this committee be instructed to report its findings, together with such recommendations as it may choose to make, too the next meeting of this society.

E. F. Howard,
S. W. Johnston,
Leon S. Lippincott,
W. H. Parsons,
Edley H. Jones,
B. B. Martin.

After explanation of this resolution, on motion of Dr. Howard, seconded by Dr. Jones, it was unanimously adopted. The President appointed as the committee Drs. W. H. Parsons, Vicksburg, for Warren County; W. C. Pool, Cary, for Sharkey County, and J. B. Benton, Valley Park, for Issaquena County.

At the conclusion of the meeting the ladies of the Women's Auxiliary of the Issaquena-Sharkey-Warren Counties Medical Society served a plate lunch on the lawn of the Country Club.

DEATHS OF MISSISSIPPI DOCTORS.

Dr. S. A. Scruggs, Lauderdale County; sudden death; June 4, 1931, at Lauderdale. Born 1854.

Dr. C. L. Bufkin, Columbia; Pellagra; at Columbia. Born at Columbia.

Dr. Louis D. Dickerson, McComb; Appendicitis followed by gas bacillus infection; June 4, 1931, at McComb. Born in Simpson County, September 11, 1869.

Dr. James Cox Vandiver, Baldwyn; Operation for gallstones; June 9, 1931, Booneville. Born at Baldwyn, May 23, 1883.

Dr. V. W. Maxwell, Gulfport; General peritonitis following appendectomy; June 26, 1931, at Gulfport. Born Mississippi, 1891.

Dr. William Little Davis, Walls; Myocarditis and muscular rheumatism; May 4, 1931, at Walls; age 74.

Dr. D. R. Lamb, Artesia; Heart attack; May 25, 1931, at Artesia. Born at Europa, May 10, 1880.

Dr. R. L. Anderson, Inverness, May 31, 1931, at Inverness. Born at West, Holmes County, August 29, 1875.

DOCTOR LUTHER LEE GREER.

Dr. Luther Lee Greer, age 50, McComb, died July 11, after a brief illness following an operation for appendicitis.

Dr. Greer had resided in McComb for a number of years and enjoyed a large practice. He is survived by his wife, one son, Luther Lee, Jr., and one daughter, Miss Mildred Greer of McComb, a brother John Greer, and a sister Mrs. C. T. Brewer of McComb.

Dr. Hardie Hays, Jackson, colonel, medical reserve corps, United States army, recently spent two weeks at Fort Beauregard, Louisiana, as camp physician of the C. M. T. C. Dr. Hays was chief of the medical staff of the civilian training camp.

MISSISSIPPI STATE BOARD OF HEALTH.

On July 1, the Pike County Health Department was organized with Dr. T. Paul Haney, Jr., as Director. Dr. Haney will have associated with him Miss Inez Driskell, Supervising Nurse; Miss Marjorie Patterson, Public Health Nurse; Miss Elizabeth Kimmons, Dental Hygienist; Miss Mar-

tha Irwin, Secretary; and L. W. Murphy, Engineer-Inspector. Pike is one of the counties chosen by the Commonwealth Fund for financial co-operation in giving to the citizens "super" health service.

Dr. T. Paul Haney, Jr. and Dr. B. D. Blackwelder have just returned from Johns Hopkins University where they attended the School of Hygiene and Public Health and were awarded certificates in public health.

Dr. J. A. Milne has just completed a course in Hygiene and Public Health at Harvard University where he was awarded the degree of Master of Public Health. Dr. Milne is now Director of the Field Unit of the Mississippi State Board of Health.

Recent visitors to the Mississippi State Board of Health: Miss Miriam Birdseye, U. S. Extension Department, Washington, D. C.; Dr. James R. McCord, Emory University, Atlanta, Georgia; Mrs. Walter McNab Miller, American Child Health Association, New York City; Arthur J. Strawson, Field Secretary, National Tuberculosis Association, New York City; Dr. M. Flint Haralson, Chief Quarantine Officer, The Panama Canal; Dr. and Mrs. Earl Bates, U. S. Bureau of Indian Affairs, Washington, D. C.; Dr. J. W. Cox, American Society for Control of Cancer, New York, N. Y.; Dr. R. A. Vanderlehr, Passed Assistant Surgeon, United States Health Service, Washington, D. C.; Dr. O. C. Wenger, Surgeon, United States Public Health Service, Washington, D. C.; Dr. L. L. Lumsden, Medical Officer, United States Public Health Service, Washington, D. C.; Dr. C. A. Scamman, The Commonwealth Fund, New York City; Dr. Lester J. Evans, The Commonwealth Fund, New York City; Miss Theresa Kraker, The Commonwealth Fund, New York City; Dr. H. N. Cruchley, Rockefeller Foundation Fellow, Jamaica; Miss Margaret E. Dizney, Nursing Field Representative, American Red Cross, Washington, D. C.; Ralph Earl, Earl Engineering Company, New Orleans, Lo.; Leon Lasser, Civil Engineer, New Orleans, La.; Dr. Julius Moldovan, Institute of Hygiene, Roumania; Dr. Leon Prodan, Institute of Hygiene, Roumania; Dr. A. J. Warren, New York City; Mrs. R. D. Rood, Staff Associate, White House Conference on Child Health and Protection; J. Georzandjis, Athens, Greece; Dr. H. C. Barnard, Director, White House Conference on Child Health and Protection, Washington, D. C.; D. T. Georgradis, Athens, Greece; Dr. Robert A. Strong, Tulane University, New Orleans, Louisiana; T. T. Kolokotronis, Athens, Greece.

HONOR ROLL.

J. C. Culley, T. M. Dye, D. W. Jones, E. F. Howard, F. J. Underwood, A. G. Payne, C. M. Speck, J. S. Hickman, W. C. Pool, C. A. Pender, R. P. Donaldson, J. J. Ackerman, E. B. Bruns, G. S. Bryan, C. M. Coker, W. H. Curry, W. N. Jankins, M. L. Montgomery, A. P. Durfey, T. J. Brown, E. H. Jones, L. J. Rutledge, G. H. Wood, A. H. Little, R. H. Brumfield, T. L. Bennett, J. M. Acker, W. K. Stowers, W. L. Hughes.

The above were contributors to the August number of the Mississippi News Section. THANK YOU!

COUNTY EDITORS APPARENTLY ON VACATION.

L. Wallin, Adams; J. R. Hill, Alcorn; P. Jackson, Amite; F. Ferrell, Benton; J. A. Hardin, Calhoun; J. P. T. Stephens, Carroll; W. C. Walker, Chickasaw; S. R. Deanes, Clay; W. L. Little, Copiah; A. V. Richmond, DeSoto; C. E. Mullins, Franklin; C. M. Shipp, Hancock; C. McCall, Harrison; A. G. Wilde, Hinds; R. C. Elmore, Holmes; W. H. Scudder, Issaquena; N. W. Nunnery, Itawamba; B. S. McIlwain, Jackson; R. B. Harper, Jefferson; F. E. Linder, Lafayette; C. T. Burt, Lauderdale; B. S. Waller, Lawrence; A. J. Stacy, Lee; W. H. Frizell, Lincoln; J. W. Lipscomb, Lowndes; D. R. Moore, Marshall; S. S. Caruthers, Montgomery; S. A. Majure, Newton; J. D. Green, Nuxubee; H. L. Scales, Oktibbeha; R. B. Cunningham, Prentiss; H. N. Holyfield, Rankin; W. C. Anderson, Scott; S. E. Dunlap, Stone; W. D. Smith, Tate; C. M. Murry, Tippah; H. P. Boswell, Union; B. L. Crawford, Walthall; S. E. Field, Wilkinson; G. A. Brown, Yalobusha.

It is a fine thing to be able to take a vacation this year. Congratulations!

While you are enjoying yourselves, think of your editors in their offices toiling to give you a real Journal.

SOCIETIES ALSO APPARENTLY ON VACATION.

At least no news! Claiborne, Clarke-Wayne, Clarksdale and Six Counties, Delta, DeSota, Harrison-Stone-Hancock, Jackson, Kemper, Leake, South Mississippi, Tate County, Tri-County, Winona District.

HOW DO YOU LIKE OUR CALENDAR?

Dates of coming meetings reported—NONE!

NO COUNTY EDITORS.

The following counties have no editors thus far. WHY? Bolivar, Clark, Coahoma, Covington, Forest, George, Greene, Humphrey, Jasper, Jefferson Davis, Jones, Kemper, Lamar, Leake, Leflore, Marion, Pearl River, Perry, Quitman, Simpson, Smith, Sunflower, Tallahatchie, Tunica, Washington, Wayne.

Your President or your Secretary, or both, have been asked to make appointments to the Board of County Editors. Will you not ask their co-operation?

BOOK REVIEWS

Manual of Surgery: By Frances T. Stewart, M. D., and Walter Estell Lee, M. D. 6th ed. rev. Philadelphia, P. Blakiston's Son & Company. 1931. pp. 1307.

This new sixth edition admirably meets the requirements of the undergraduate for whom the original edition was prepared by Frances T. Stewart. It also meets the demand of the busy practitioner for whom it makes available a great fund of information concisely put.

Dr. Walter Estell Lee has added many new chapters which have increased the value of the book.

The subject of anesthesia and anesthetics has been brought up to date to include ethylene, sodium amytal and avertin.

The authors have done well to include the chapter on bandaging which they have borrowed from Wharton's Minor Surgery.

Recent developments in surgery of the heart and pericardium are discussed in a chapter which was prepared by Dr. Elliott Cutler.

The chapter on post-operative treatment is particularly valuable.

Attention is directed to the management of punctured wounds in the prevention of tetanus which should be more generally caried out.

The chapters on abdominal surgery are well illustrated, and are extremely interesting as well as valuable.

On the whole the book should occupy an important place in the library of the busy surgeon who is anxious for a ready-reference volume.

ISIDORE COHN, M. D.

How It Happened: By A. G. Bettman, M. D., F. A. C. S. Philadelphia, F. A. Davis Co. 1931. pp. 110.

If there is a prize for unadulterated nerve it should be awarded to Dr. Bettman (whose first name is incidentally Adalbert). After reading his collection of Sandburgesque "pomes" anent medicine, one wonders if the young poet-doctor enjoyed writing them half as much as finding a publisher brave enough to print them. No doubt the studio sophisticates and drawing-room literati will defend "How It Happened" and label it Smart; other will dismiss the book as dribble. Subtly humorous or silly, it is a novel and unique departure.

MAURICE SULLIVAN, M. D.

Treatment of Epilepsy: By Fritz B. Talbot, M. D. New York, Macmillan Company. 1930. pp. 308.

This is a monograph on a very important subject and there is at present great need for a book of this character.

In the preface the author informs us that this book is intended to present the facts which seem essential for an understanding of the disease from the point of view of the general practitioner, and to outline the practical methods of treatment. To the reviewer he has more than carried out his intentions.

The title of this excellent monograph would lead one to believe that it treats only of the treatment of epilepsy, but the author has judged wisely to include in the first part of the book in a complete, clear and brief manner short chapters dealing with the history and age incidence of the disease proving with statistical tables from the best available sources the importance of the recognition of the existence of the disease in early life when treatment is most apt to prove beneficial. Then follows the chapter on etiology. Here the latest views on the various etiological factors are discussed, including the intoxications, dysfunctions of the endocrine glands and, of great importance, at this time, the intimate relation between the metabolic processes of the body and the symptom complex known as epilepsy. In the chapter on pathology will be found the role played by intracranial pressure and the theory upon which the dehydration method of treatment is based. Equally interesting will be found the chapters on diagnosis, prognosis (especially under various form of treatment) and symptoms, including in the latter the epileptic equivalents and the atypical attacks. At the end of the first section will be found chapters on the treatment of the epileptic, including the treatment of the seizure, the removal of the probable causes by the reduction of the disturbing factors, the proper attention which should be given to physical, social and mental hygiene, education, diet and drugs.

In the second section of the monograph, covering more than half of the work, the author presents the subject of dietary treatment. He enters very minutely but clearly into the description of the factors necessary for an understanding of the dietary treatment, the general theoretical factors involved in ketosis, the clinical results of fasting, the clinical results of the ketogenic diet, the detailed management of the ketogenic diet with the methods of producing ketosis. All of this from

one who is known for his excellent research on the metabolism of epilepsy.

The reviewer finds its difficult in this short review to call attention to more valuable points in this book. Suffice it to say, that from the standpoint of actual practice it is invaluable and should be consulted by all those who treat epileptics.

L. L. CAZENAVETTE, M. D.

Diagnostic Methods in Internal Medicine: By Samuel A. Lowenberg, M. D., F. A. C. P. 2nd. rev. ed. Philadelphia, F. A. Davis Co. pp. 1032.

The popularity of this treatise on diagnostic methods is attested by the exhaustion of two large printings of the first edition and now the publication of this second edition after a period of two years. The book is profusely illustrated by some 547 good illustrations and charts. It is more than a work on physical diagnosis for it contains some one hundred pages on the interpretation of laboratory findings. This is a valuable addition. The reviewer believes that this volume is one of the most complete on this subject and can be recommended to both students and practitioners.

RANDOLPH LYONS, M. D.

Heart Disease: By Paul Dudley White, M. D. New York, The Macmillan Company, 1931. pp. 931.

Dr. White's monograph is the most important contribution to recent literature in this field. It covers adequately all of the modern conceptions of heart disease and all that is latest in diagnosis and treatment. Hence, it can be regarded as authoritative. Dr. White's selection of what is to be presented and what is to be emphasized shows the sound judgment of the ripe clinical observer and experienced teacher. It is a book whose easy style tempts one to read from cover to cover, and to whose pages one will acquire the habit of referring when seeking aid. It is of such monographs that the doctor may build up a library dependable and helpful, a collection of good friends, as it were. The constant allusion to the history of the development of our knowledge of heart disease adds greatly to the interest and value of the text; particularly stimulating is the inclusion from time to time of extensive quotations from epoch-making contributions by past masters. Such, for example, are quotations from Laennec's and Auenbrugger's original communications on percussion and auscultation respectively, Heberden's description of angina pectoris, and Stokes' and Adams' first report of heart block. The extensive and very complete bibliography adds additionally to the value of the work.

I. I. LEMANN, M. D.

Diabetes: Its Treatment by Insulin and Diet: A Handbook for the Patient. By Orlando H. Petty, A. M., M. D., F. A. C. P. 5th ed. rev. Philadelphia, F. A. Davis Company. 1931. pp. 231.

A good, clear, dependable guide for the diabetic patient. The appearance of its fifth edition is an indication of its apparent popularity. There are a number of these handbooks for diabetic patients by various authors. Most of them are about equal in merit. They constitute a very important factor in the education of the diabetic patient and in his proper treatment. Every doctor treating diabetic patients should familiarize himself with some of these guides and select one which he can recommend and prescribe for his patients.

I. I. LEMANN, M. D.

The Treatment of Chronic Deafness by the Electrophonoide Method of Zund-Burguet: By George C. Cathcart, M. A., M. D. 2nd ed. Lond., Oxford University Press. 1931. pp. 126.

Chronic deafness of such frequent occurrence is such a depressing physical handicap to its victims that any method of treatment offering a ray of hope for its alleviation should be thoughtfully considered. It is a debatable question whether marked deafness is more depressing mentally to the sufferer than blindness but every otologist has his share of deaf persons with head noises who speak of contemplating suicide.

The Zund-Burguet electrophone was devised by Dr. Zund-Burguet, of Paris, who is not a physician, but a physicist. He originally intended his instrument to be an aid in the re-education of the deaf and dumb. Later it was used as a re-educative method of treating deafness by means of auditory exercises was used as long ago as the first century A. D., and has been revived and used at various times since then. Auditory exercises are today used in selected cases in the training of speech for the deaf and dumb, being used to give the pupil the sense of pitch without which he never develops a properly modulated voice.

The electrophone of Zund-Burguet reproduces the sound vibrations of the whole gamut of the human voice and is thus intended to give requisite physiological stimulus to the ear. It produces pitches of sounds ranging from 80 to 3500 dvs., these being the frequencies of practical importance to the human ear. Volume may be regulated at will. In addition to sound, the apparatus, by

means of a secondary current imposed on the primary one, produces what Cathcart calls "molecular massage" which is felt as a gentle tickling in the ear and tends to relieve the sense of fullness in the head complained of by most deaf people. The author gives detailed instructions for operation of the electrophone with numerous exercises for treatment of the deaf.

The author gives his results from the treatment of 665 cases of deafness by this method. Of 187 cases of nerve deafness 138 or 73.8 per cent improved. Of 261 cases of chronic otitis media (not classified into suppurative and non-suppurative) 174 or 66.6 per cent improved. Of 217 cases of otosclerosis, 117 or 53.9 per cent improved. Taken as a whole 64.5 per cent of 665 cases of chronic progressive deafness were improved.

H. KEARNEY, M. D.

Crippled Children; Their Treatment and Orthopedic Nursing: By Earl D. McBride, B. S., M. D., F. A. C. S. St. Louis, C. V. Mosby Co. pp. 280.

This book will be of great help to nurses, educators and all who are interested and have under their supervision the care of crippled children. It is a very readable book and should appeal strongly to internes and nurses.

There are chapters on the use of plaster paris, adhesive plaster, orthopedic equipment and physical therapy. The various crippling diseases are explained and their treatment outlined. There is an appendix giving definition of orthopedic terms which will readily be appreciated.

The author is a personal friend of your reviewer and I can speak for his painstaking care in the treatment of crippled children.

EDWARD S. HATCH, M. D.

Handbook of Physiology: By W. D. Halliburton, M. D., LL. D., F. R. C. P., F. R. S. and R. J. S. McDowall, M. B., D. SC., F. R. C. P. (Edin.). 19th ed. Philadelphia, P. Blakiston's Son and Co. 1930. pp. 842.

During fifty-four years this book, known as Kirkes' Physiology, saw thirteen editions in succession edited by a number of physiologists all of whom were connected with St. Bartholomew's Hospital. In 1896 Professor Halliburton took over the work incident to bringing out a new edition. In twenty-nine years under Professor Halliburton's guidance, seventeen editions were published, so, as the book had become an entirely new one, the name of Kirkes was dropped, and *Halliburton's Physiology* became its recognized title. In 1928 another revision became necessary; and as Professor Halliburton found that he needed help in preparing it, the assistance of his successor at King's College, Professor McDowall, was secured.

Although the authors in their preface point out that in holding with the advances in Physiology, which make it no longer necessary to write a textbook of Physiology on an anatomical basis, they have omitted much of the detail of histology which earlier editions carried, the reviewer is convinced that there are still far too many illustrations of gross and microscopic anatomy. The first four chapters might have easily been omitted and there is too much chemistry for a book dealing with Physiology in the usual meaning of the word. The subject matter is handled too briefly to be adequate. This is notably so in the case of the electrocardiogram and the glands of internal secretion.

HENRY LAURENS, Ph. D.

Diet Book for Doctor, Patient and Housewife: By Marguerite Requa Rae. London, Oxford Univ. Pres. 1931. pp. 197.

It merits no particular considerations.

I. L. ROBBINS, M. D.

PUBLICATIONS RECEIVED.

P. Blakiston's Son & Co., Philadelphia: The Doctor and His Investments, by Merryle Stanley Rukeyser, B. Lit., M. A. Recent Advances in Medicine, by G. E. Beaumont, M. A., D. M. (Oxon), F. R. C. P., D. P. H. (Lond.), and E. G. Dodds, M. V. O., M. D., Ph. D., B. Sc. Recent Advances in Pulmonary Tuberculosis, by L. S. T. Burrell, M. A., M. D., F. R. C. P. (Lond.).

Oxford University Press, New York: Infuries and Sport, A General Guide for the Practitioner, by C. B. Heald, C. B. E., M. A., M. D., M. R. C. P. (Lond.).

W. B. Saunders Company, Philadelphia: Collected Papers of The Mayo Clinic and the Mayo Foundation, by Mrs. Maud H. Mellish-Wilson, Richard M. Hewitt, B. A., M. A., M. D., and Mildred A. Felker, B. S. Proctoscopic Examination and the Treatment of Hemorrhoids and Anal pruritus, by Louis A. Buie, B. A., M. D., F. A. C. S. A Text-Book of Medical Diseases for Nurses, by Arthur A. Stevens, A. M., M. D., and Florence Anna Ambler, B. S., R. N. A Clinical Study of Addison's Disease, by Leonard G. Rowntree, M. D., and Albert M. Snell, M. D.

Lea & Febiger, Philadelphia: Accidental Injuries, by Henry H. Kessler, A. B., M. D., F. A. C. S., F. A. P. H. A.

Williams & Wilkins Co., Baltimore: International Studies on the Relation Between the Private and Official Practice of Medicine with Special Reference to the Prevention of Disease, by Sir Arthur Newsholme, K. C. B., M. D., F. R. C. P.